The Iron Age

A Review of the Hardware, Iron and Metal Trades.

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Reversing Rolling Mill Engines for the New Cleveland Steel Works, Eston, England.

Messrs. Bolckow, Vaughan & Co. are now erecting at Eston, in the Cleveland district, a very extensive steel works. All the plant is of the most improved description, and the owners have taken unusual pains to avoid a common source of enormous loss in iron and steel works—the breakdown of machinery. To this end the whole of the plant is not only unusually strong and heavy, but is designed and finished with remarkable care. Messrs. Thwaites & Carbutt, of Bradford, have fitted up much of the machinery, and we have great pleasure in laying before our readers this week an illustration which may be taken to represent the most modern and improved type of heavy reversing mill engines to be found in Great Britain.

The engines in question are intended to drive a very heavy ingot cogging train. The cylinders are 36 in. diameter and 4 ft. 6 in. stroke. They are cast of a special mixture of very hard and tough iron, the average thickness of the metal being 1¾ in.; the steam ports have an area of 120 square inches. The valves are, it will be seen, of the piston type, with cast iron rings and steel springs.

The main pistons are Mather & Platt's patent, with packing rings 13 in. broad on the face. The piston rods are of Krupp's steel, 5⅛ in. diameter, tapered into the cross-head, and fixed to the pistons with collars, nuts and pins. The bottom steel bars are solid with the engine bed, and the top bars are of cast iron. The slide blocks are 23¾ in. long and 10 in. wide. The cross-heads are of cast steel, with wrought iron gudgeons.

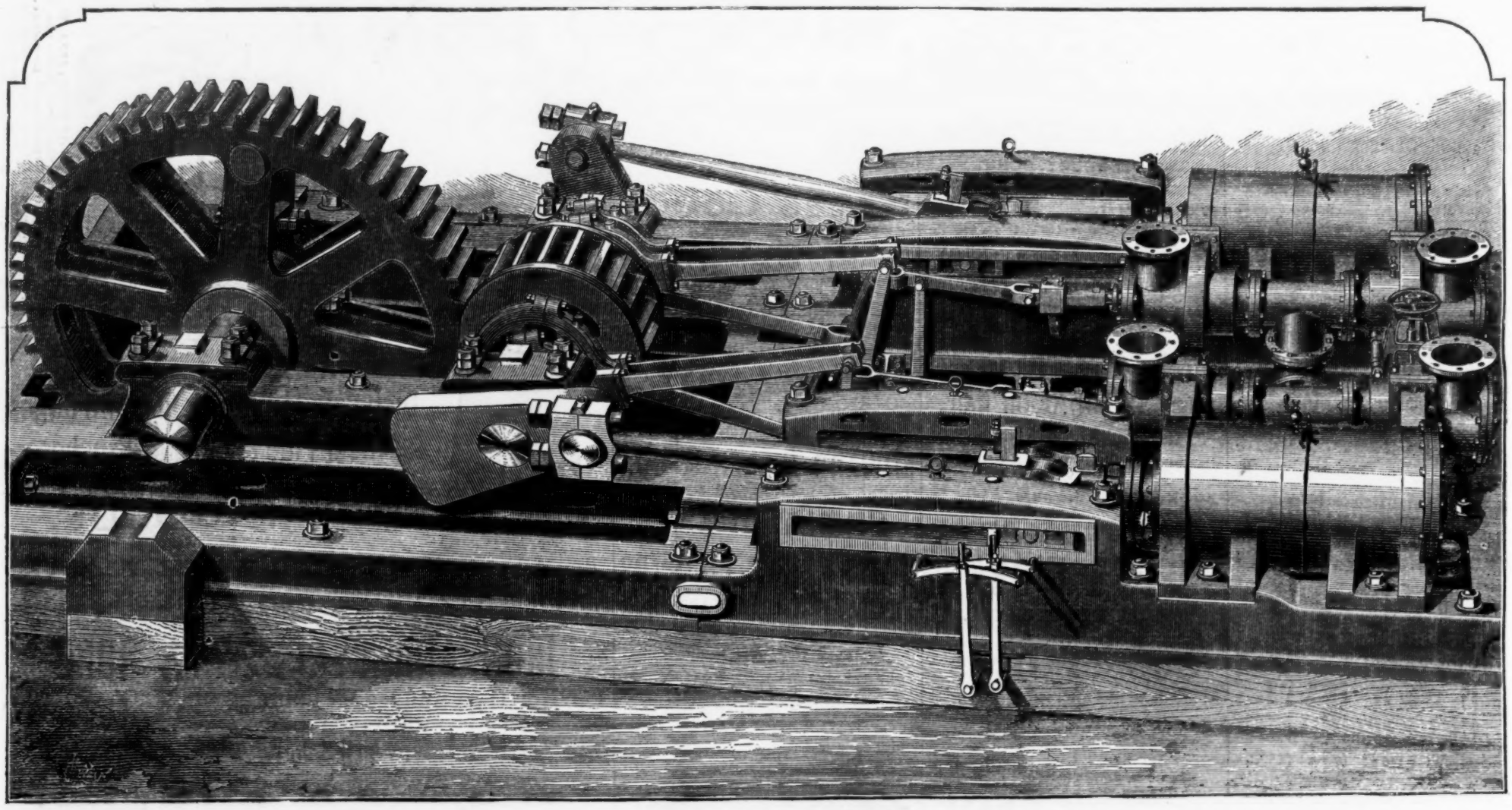
The bed plates occupy a floor space of 43 ft. 6 in. long by 17 ft. 3 in. wide. The beds are 12 ft. apart from center to center, and of ∩ section, 1 ft. 9 in. deep in the shallowest place and 3 ft. 3 in. deep at the gearing end, 12 in. wide at the top and 1¾ in. thick. The gearing sides of the beds are 20 in. wide and 2⅛ in. thick at top and 2 in. at the sides. The bearings are cast solid with the beds. The beds are each cast in two lengths, secured together with 3 in. turned bolts and hoops on lugs.

Each engine bed is held down to the foundations by twelve bolts, 3 in. diameter; the engine beds are joined together at the gearing end with a fender girder, and further connected together with a transverse girder at the joining of the beds. The connecting rods are of wrought iron, 11 ft. 3 in. long between centers, 9 in. diameter in the middle, 7 in. diameter at the crank pin end, and 6½ in. diameter at the piston rod end. The bearings at the small end of the rod are 6 in. diameter and 8 in. wide, and at the large end of the rod are 9 in. diameter and 9 in. wide, fitted with gun metal brasses; the big end is of the marine type, with gun metal bearings, and 4 in. steel bolts with lock nuts, for securely holding the cap. The cranks are of the best hammered scrap iron, 11 in. wide at the boss, and 8 in. thick at the crank pin end, and have large balance weights forged opposite the cranks. The crank pins are of Krupp's steel, 9 in. diameter, collared and keyed into the crank boss, and riveted over into countersinks at the back of the crank. The crank shaft is of Krupp's steel, the journals being 13 in. diameter and 20 in. long, and it carries a pinion wheel 4 ft. 5⅝ in. diameter, 8 in. pitch, with twenty-one teeth, and shrouded on both sides to the top of the tooth, and 22 in. wide between shrouding.

The second motion shaft is also of Krupp's steel, with journals 10 in. diameter and 20 in. long, and carries a wheel 12 ft. 9 in. diameter, with 60 teeth, and 20 in. breadth of tooth, and weighing no less than 20 tons; both wheels are cast from a special strong mixture of cold-blast and other good brands of iron. The shaft has a boss on both ends to receive the coupling boxes; the valve motion is of the straight link type, with three eccentrics and rods to each valve. The wrought iron eccentric rods are fitted with adjustable gun metal bearings at the ends. The pendulum links, with the weight bar shafts and levers, are of the best Yorkshire iron, and all the motion pins are hardened cast steel. The reversing arrangement consists of a steam cylinder governed by a water cataract. The two valve boxes are connected together and up to a double-beat equilibrium steam valve, which is controlled by the engineman moving the handles outside of the engine bed. This valve can be shut off with a hand wheel, and answers for a stop valve. All the work is of the best material, extra strong, and from entirely new patterns.

It will be seen from the foregoing particulars that this is one of the largest, and certainly the heaviest engine of its class ever constructed. It will give a still better idea of its proportions if we say that the total weight of the engine and gearing we illustrate is 137 tons.

The foundation consists of a solid bed of concrete 19 ft. deep, the top being finished by a bed of Memel ashlar 3 ft. thick. The engine beds are planed true on the under side, and bolted direct on to this masonry—and not on to oak beams, as shown in our engraving—by twenty-four 3 in. bolts, each 25 ft. long.



REVERSING ROLLING MILL ENGINES FOR THE NEW CLEVELAND STEEL WORKS, ESTON, ENGLAND.

An Old Gun.—The Bangor (Me.) *Whig* says: An old piece of ordnance has recently been taken from the bed of the Penobscot River, at Bangor, where it has lain in undisturbed repose for 97 years. It is in a very good state of preservation, and passes into the hands of the Maine Historical Society for safe keeping. In 1779, a portion of Commodore Saltonstall's fleet, designed for the recapture of Castine from the British, sailed up the Penobscot, and 10 of his vessels were blown up at Bangor. During the war of 1812 some 30 cannon from this fleet were raised and performed service. The remainder have remained in the river until the recent recovery of the cannon referred to.

Railway Servants.

In the course of the coroner's inquest as to the cause of the death of Mr. B. F. Woodworth, killed by an accident on the New York Central Railroad Dec. 9th, McGraw, the brakeman whose "carelessness" was supposed to have caused the accident, gave testimony substantially as follows:

He left Buffalo Friday night; was sent back by his conductor to flag the St. Louis express Saturday night, after having been on the road one week, from Sunday night until Sunday, without being in a bed, with nothing to eat from Friday at 5 p. m. until Sunday morning after the accident. McGraw went back to Looneyville in the terrible storm, found the station locked, and was nearly paralyzed; walked beyond Looneyville a quarter of a mile; stood by a caboose of another train half an hour waiting to be relieved; finally got into a caboose, his hands too cold to hold the lamp any longer, and the lamp was nearly extinguished. While fixing the lamps, so they would burn as they should, he heard something coming, and when he got to the platform found it was the St. Louis express. He says: "Just then I went to the stove to pick up the lamps, when I heard an engine blowing off steam and passing by; I rushed for the platform, but the second engine had just passed; got down and shouted and swung my lamps as best I could, hoping that some one might hear or see me; no one noticed me. After that I followed on down to where the collision occurred; the men in the caboose were asleep; did not ask them to go out and flag for me. I was sure that from the chance I had to see from the caboose I could stop the train. Had an overcoat on, and a cap to protect my ears. When I went in the caboose my hands were so cold I could hardly hold the lamps; did not fall asleep while in there. Before I went back to flag the train I was nearly played out; had nothing to eat from 5 o'clock Friday evening until Sunday morning after the accident; had no sleep during the week, except the little I could get on the hard benches of an emigrant train. My conductor gave me 25 cents, and I went in a farm house and got two sausages and three or four pieces of bread; three of us eat that. Was not in bed from Sunday until Sunday—just a week. The last time we came in we had been on the road about 23 hours; that being Friday night; just had time to eat supper and then go out again. Our caboose was not a regular one, but an old emigrant car without cushions. If I had been looking out of the caboose window I could have seen the train. The lamps I had were lit at dark Saturday evening, and had been burning all that time. When I went in I thought I could see the train before it got there. The wind was blowing at a fearful rate, and it was very cold. Had been on the road five years; never had any complaint made against me before."

The World's Merchant Marine.

The New York *Daily Bulletin* publishes tables which show the mercantile fleets of the different nations of the world and the number of seagoing steamers, with the various nationalities to which they belong. The figures are of special interest to mercantile and business readers. No list of the lake and coastwise fleet of the United States is procurable, though it is believed to be the largest in the world. The late war had a disastrous effect on American shipping, and the depression of business since 1870 has prevented the replacing of vessels, of which from 2000 to 2500 are lost every year, and about 2000 merchant ships are annually built. But the aggregate number of ships and amount of tonnage are greater than in 1874, though still less than in 1870. The United States has 7288 vessels, which is 419 more vessels than in 1874, and the tonnage is 2,390,521, an increase of 208,862, while Great Britain has 273 vessels less than in 1874, though their carrying capacity is 423,602 tons greater than two years ago. Her figures are 20,265 vessels, 5,807,365 tonnage. Germany and France have both fallen off since 1870, the former having now 3456 vessels, against 3483 in 1874, though the tonnage is 875,995, an increase of 23,206 tons since two years ago; while the decrease of vessels is still greater since 1870, the number then being 4320, while the tonnage was 1,046,044, considerably larger, as will be seen by the above figures, than it is at present. France has now 3858 vessels, showing a small increase over 1874, when the number was 3780, but a decrease for 1870, when the number was 4068. In French tonnage there has been a decrease since both 1874 and 1870, the tonnage in 1876 being 725,048; in 1874, 736,626; in 1870, 891,828. Norway, the old nursery of seamen, shows an increase both in the number of ships and tonnage, the number in 1870 being 3652; in 1874, 4464, and in 1876, 4749; while the tonnage in 1870 was 989,882; in 1874, 1,349,138, and 1876, 1,410,903. Russia had in 1870, 1366 ships; in 1874, 1428, and in 1876, 1785; the tonnage in 1870 was 346,176; in 1874, 331,350; in 1876, 391,952; an increase since 1870 in both ships and tonnage. Spain is behind Norway and Italy in the number of her ships, and has fallen off in ships since 1870, the number then being 3036; in 1874, 2674, and in 1876, 2915. There has been a slight increase in the tonnage since 1870, it having been then 545,607; in 1874, 509,767, and in 1876, 557,320. Sweden shows an increase of both ships and tonnage, while Italy has increased her merchant marine by 1206 vessels, with a carrying capacity of 384,506 tons. In steam vessels Great Britain is far ahead of the United States, having 1,711,225 more tonnage than in 1870, while we have increased 275,926 tons. For America the present figures are 605 steamers, 789,728 tonnage; for Great Britain, 3299 steamers, 3,362,992 tonnage. Still, as before said, there are no means of ascertaining, with any degree of certainty, the statistics of our coastwise and lake steamers.

The Tomb of the Sultans.—The correspondent of a London newspaper writes: To the left I beheld a building, in the most sumptuous style of Turkish architecture—a circular edifice, domed, with pillars all of white marble, lighted by seven windows with richly carved and gilded lattices. Peeping through the grating, I saw a kind of front parlor laid with matting, and from the ceiling, daubed with floral designs in tempera by some Italian decorator, hung two or three tawdry glass chandeliers. A common English eight-day clock in a mahogany case stood silent in one corner. The horologe had need to be mute there. The place was a tomb, and as I peeped I saw a number of biers rising perhaps 5 feet from the ground, covered with embroideries of velvet and gold, or with the richest cashmere shawls, and surrounded by railings inlaid with mother of pearl. Scattered about were gigantic candlesticks of silver gilt, stands of rare wood, richly ornamented, to support the Koran; and at the head of one bier I could dimly see a faded fez cap with a plume and an *aigrette* which glittered with the sheen of diamonds. Beneath that sarcophagus molder the remains of Sultan Mahmoud II., the great reforming Sultan who slew the Janissaries and strove to Europeanize Turkey, leaving to his son Abdul Medjid, his grandson Abdul Aziz, and the other Caliphs whom you wot of, the hideous legacy of the Eastern question. Mahmoud lies here; and around him slumber the Sultana Valideh, his mother, his sisters and five of his daughters. They and the dumb English eight-day clock sleep very tranquilly together. But surely they should have put a sun-dial in this sepulchre. The rays glinting through the gilded lattices might have played strange tricks with the gnomon.

Our relations with Germany are becoming intimate. The German steamer Rhein left here Monday afternoon, carrying 20,105 ordinary, 258 registered letters, and 33 pouches of newspapers,

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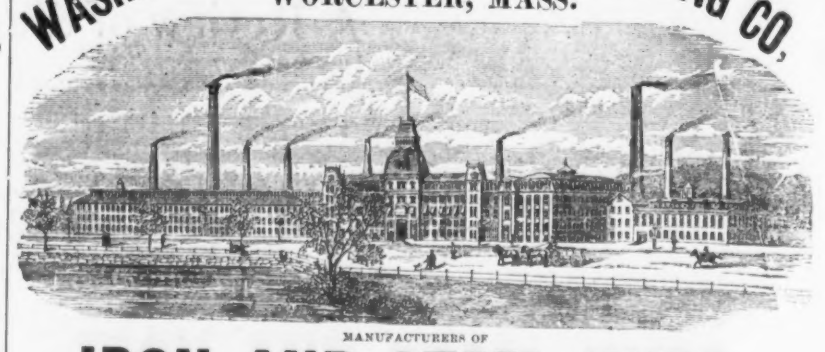

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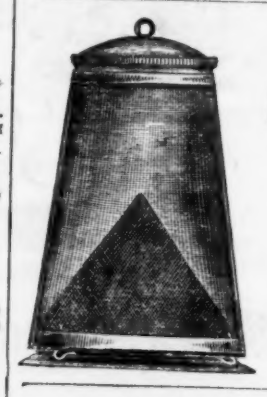

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Street Cars in Constantinople.

The correspondent of the London *Telegraph* writes :

There is no hurry—the Mussulman never is in one—and we have ample leisure to contemplate the machine and the place it starts from. Observe the driver; he is duly provided with a three-legged stool to sit upon, and a wheel-brake similar to those supplied to his congeners, in London, Paris, New York and St. Petersburg—in short, wherever this tramway system flourishes. But not anywhere, save in Stamboul, would you behold such a Jehu as this—a tall, wiry man, with a hooked beak prominent as the prow of a Roman galley, a black leech-like moustache, and his hair shaved closely off his temples and forefront so as to give his flesh in those parts a bluish tinge, such as you may notice in some conscientious actors off the stage. Unconscientious comedians do not so shave their temporals and frontals, and are careless as to how their wigs may sit. The Turkish car driver wears a fez of the hue, say, of a tomato which has been run over by the wheel of an omnibus on a wet day, or of a pickled cabbage, the quality of the vinegar employed to preserve which has left something to be desired. Otherwise he is attired in a many-caped great coat of a dingy drab color, whose very fellow I have seen hundreds of times hanging outside the shop of a vamper of old clothes in Dudley street (late Monmouth street), Soho, London. You know the kind of coat. It is that which the old hackney coachman used to wear, and a few four wheeled cabmen—usually the most drunken and the most abusive of their class—still affect, being called, if I do not err, sometimes a "wrap rascal," and sometimes an "upper Benjamin." In the name of wonder, how ever did this nearly obsolete gaberdine find its way to the Golden Horn? Underneath the driver is a Turk; at least he wears baggy breeches and cross-gartered leggings. He is smoking a cigarette. To him enters his conductor, a coal-black negro in a caftan and pantaloons which should be of the color of the undriven snow, but the tint of which reminds you far more forcibly of snow after it has been on the ground for a week, or after a couple of chimney sweeps have had an up-and-down fight upon it. This man, possibly a Nubian, is terribly pitted with the small-pox; for the rest, he is as friendly and as cheery as negroes generally are. To an amicable smile he instantly responds by grinning hugely, and at once invites me to take my place in the tramway caravan. It is as well to do so without further delay, since the machine is filling rapidly, and the seats are few while the passengers are many. Hanging on by straps from the roof is a practice as common in Stamboul as in the American horse cars, but, for one very good and sufficient reason, you are not called upon some half a dozen times in the course of half an hour to give up your seat in order to accommodate a lady. This is that there are none in the car, and that there never will be until social reform in Turkey attains proportions the magnitude of which even the most advanced of the "jeune Turque" party shrink from contemplating. I notice that there is a door at the end of our car, which is being constantly opened and shut to give passage to the conductor as he collects the tickets. That portal leads to the ladies' compartment, and therein they sit veiled, but by no means up to the eyes. There are some with bundles, and there are others with babies, and, as rule, the majority of these fair wearers of the *yashmak* are giggling. To me there is no more beauteous sound in the world than that of the laughter of women; still, you have a natural desire to know what they are amusing themselves at. The giggling Turkish ladies are inscrutable. A volatile French friend of mine here assures me that *les petites dames Turques* always begin to laugh when they see a Frank, and if you pass a carriage with a pair of Turkish ladies in it, and blow kisses to them, the fair inmates invariably return them to you. I am afraid, however, that my informant is an inconsequential youth; and I, at all events, should dread to venture upon such pneumatico-osculatory telegraphy. Supposing that it turned out that I had wafted kisses to one of the wives of a Bimbashi, a Kaimakan, or a Zaptieh? There is horror in the thought. That the conductor even should have been permitted to go backward and forward in this compartment full of possible *Kadins* and *Khanums* puzzled me somewhat. To be sure he was black; and that fact may have had something to do with the immunity which he appeared—the burly rogue—to enjoy.

We started at last, the driver winding a most unearthly dirge on a horn. I looked around, and perceived, to my delight, that, with the exception of my companion, I was in exclusively Oriental company. There was not a single "stove pipe" hat—nay, nor a wide-awake, or a "soft felt"—beyond our own in the car; and on counting heads I discovered that even the fezzes were in a minority. The turbans "had it," at least five to four. I had an inkling, too, thus early of the remarkable social equality which tempers despotic institutions among this essentially democratic race—this people among whom, even as things now stand, the *caikje* or the cobbler to-day may entertain hopes of becoming Capidan Pasha or Grand Vizier to-morrow. Perhaps the turbaned gentlemen, fluttering in grimy rags, who set by my side in the tramway car, was thus destined to flourish as a Bashaw with three tails. He certainly looked as though a turn in the tide of his affairs would do him no harm. Next, on the other side, was a patriarchal personage with a long white beard, a pelisse lined with expensive furs, cashmere shawl, worth at least 100 guineas, round his ample waist, and a green turban. He was, so they gave me to understand, an Emir, a descendant of the Prophet. Fancy the Archbishop of Canterbury riding in a tram car from the New-cut to Kennington-oval.

Creating Commerce.

This country having found and supplied many foreign markets within a few years, and thereby contributed to the profitable employment of domestic industry, the restoration of commerce, the equalization of prices and general welfare, still needs more to consume an excess of some productions and furnish the material for new industries, or contribute that material in exchange for which we are now obliged to pay in coin. Recent facts point out one new outlet that cannot long pass unnoticed and unconsidered.

Fresh German statistics place the population of the world at 1,423,917,000, giving 824,000,000 to Asia, 309,178,000 to Europe, 199,900,000 to Africa and 85,000,000 to North and South America. The density of African population, estimated from many recent explorations, is accompanied by some other considerations. Central Africa, according to Commander Cameron's recent report, contains incalculable quantities of coal, iron, gold, silver and copper, great forests of nutmeg trees and of the oil palm scattered in every part, beside coffee and indigo. Labor is so cheap, owing to dense population and simple and abundant food, that all of these resources could be prepared for exchange at a very low price, and yet at one which would remunerate the natives. The only existing business with the coast is transacted by porters and confined to ivory and slaves, in exchange for guns, cloths, cutlery and the simplest fabrications. The Nile forms an inlet from the north, the Zambesi from the east and the Congo from the west. They are all navigable, and their sources can be readily united by 20 miles of easy canal. The Congo is the shortest route, and reaches the densest population in 800 miles of travel and then joins the mysterious Lualaba. There is steam along the coast, on the Nile and on Lake Nyassa; and an attempt is being made to introduce it upon Lake Tanganyika. This will eventually reach the dense interior Mohammedan population, and so soon as such a route is opened travel and trade will commence, and trade will expand wonderfully and instantly, as well from the wants of the natives as from those of the world.

Here, then, is a field for our commercial enterprise as near and desirable as India was to the first companies of French, Portuguese, Spaniards and English; from which the latter country having derived incalculable wealth, has gained the latest brilliant in her crown. There is no prior occupation. Italy has an exploring expedition there; and Belgium, enticed by the $10,000,000 English importation of palm oil notwithstanding difficult transportation, is seeking a share of the trade. Access to all the western coast is very easy to us and speedier than access to many parts of Europe. We have a languid trade on all the coasts—north, east and west. The greater—that which comports with the area of the land, the variety of its productions, the density of its population and the nature of their wants—this must be created. Our opportunities are now as good as those of any country. They must be improved at once, or, if delayed, they will be divided with, if not controlled by more enterprising lands. The opportunity presents itself with knowledge at the instant when, having brought our currency near to par, we are better prepared to do that which is immediately expedient and of great subsequent value than we have been for years We can, at the utmost, gain but a moderate share of European trade, and that is not altogether in our favor. We are at a disadvantage in Australia; all Asia is ministered to by Europe, east, south and west; South America is a limited theater and partly held by Europe. In Africa, with this dense population and such capacities for trade, we have as yet no formidable rivalry. Great Britain is endeavoring to seize the coast and so control the interior, but has not yet done so. We may by resolute and timely action send our flag to the interior, open or improve routes of travel and derive an advantage that is not offered by countries long provided with commerce. The attempt would not be expensive and its success would be of more use than many international medals. —*North American.*

Pennsylvania and the Centennial.—In a preliminary report to the Legislature, the Pennsylvania Board of Centennial Managers publish several tables comparing the work of citizens of Pennsylvania with that of the citizens of other states—"not for the purpose of disparaging other states, but as a simple act of justice to our own Commonwealth." The individual subscriptions to stock of the Board of Finance, made by Pennsylvanians, amounted to 187,218 shares, upon which $1,749,468 was paid, while the total number of shares subscribed for was 245,578, upon which $2,278,950 was paid. Philadelphia appropriated $1,575,000 to the Exhibition, and the State Legislature $1,110,000, making the total contributions from Pennsylvania (including $50,000 donations), $4,484,468. Adding to the appropriation of $1,500,000 by the United States government, $300,000 appropriated by other States for the erection of State buildings and the display of State products, and $529,482 paid by citizens of other States on account of stock of the Board of Finance, the whole is but little in excess of one-half of Pennsylvania's contribution. There were exhibitors from Pennsylvania in every department of the Exhibition, the total number being 3049. They were distributed as follows: Department of Agriculture, 934; of manufactures, 836; of machinery, 528; of education and science, 270; of art, 243; of mining and metallurgy, 161; of horticulture, 87. The report simply states that Pennsylvania largely exceeded every other State in the number of exhibitors and the variety of their exhibits, but gives no comparative data.

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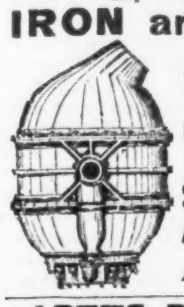

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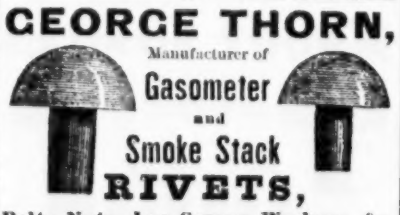

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Patents and Trade-Marks.

We have just received the annual report of the Commissioner of Patents for 1876, from which we make the following interesting extracts:

Number of applications for patents during the year 1876	21,425
Number of patents issued, including reissues and designs	15,595
Number of applications for extension of patents	2
Number of patents extended	3
Number of caveats filed during the year	2,697
Number of patents expired during the year	814
Number of patents allowed but not issued for want of final fee	3,353
Number of applications for registering of trade-marks	1,081
Number of trade-marks registered	959
Numbers of applications for registering of labels	650
Number of labels registered	402

Of the patents granted there were to:

Citizens of the United States	16,239
Subjects of Great Britain	511
Subjects of France	104
Subjects of other foreign governments	172
Total	17,026

Number of patents issued by the United States Patent Office to residents of the different States, Territories and foreign countries, from January 1, 1876, to December 31, 1876.

[The proportion of patents to population is shown in last column.]

States, &c.	No. of patents	One to every—
Alabama	46	21,673
Arizona Territory	2	20,855
Arkansas	23	21,064
California	423	1,376
Colorado	21	2,246
Connecticut	736	730
Dakota Territory	10	4,000
Delaware	35	3,572
District of Columbia	197	668
Florida	22	8,556
Georgia	63	18,795
Idaho Territory	5	4,116
Illinois	1,298	1,957
Indiana	475	3,954
Iowa	425	2,810
Kansas	83	4,498
Kentucky	163	8,104
Louisiana	107	6,791
Maine	178	3,522
Maryland	273	2,860
Massachusetts	1,587	918
Michigan	436	2,787
Minnesota	164	2,720
Mississippi	42	19,712
Missouri	423	4,469
Montana Territory	3	13,208
Nebraska	40	3,233
Nevada	21	2,796
New Hampshire	106	3,003
New Jersey	685	1,323
New Mexico Territory	1	111,303
New York	3,914	1,121
North Carolina	51	21,007
Ohio	1,195	2,330
Oregon	24	4,215
Pennsylvania	1,895	1,859
Rhode Island	231	941
South Carolina	21	22,561
Tennessee	107	11,762
Texas	108	7,582
Utah Territory	14	7,113
Vermont	111	2,978
Virginia	145	8 449
Washington Territory	5	7,486
West Virginia	54	8,185
Wisconsin	303	3,515
Wyoming Territory	10	1,151
United States Army	7	....
United States Navy	1	....
United States in general	16,231	2,398

Comparative Statement of the business of the Office from 1837 to 1876, inclusive.

Year.	Applications.	Caveats filed.	Patents issued.
1837	....	....	435
1838	....	....	520
1839	....	....	455
1840	735	228	473
1841	847	312	495
1842	761	391	517
1843	819	315	531
1844	1,045	380	502
1845	1,216	432	502
1846	1,272	448	619
1847	1,571	553	572
1848	1,628	607	660
1849	1,995	595	1,070
1850	2,193	602	995
1851	2,328	760	869
1852	2,639	906	1,020
1853	2,473	901	958
1854	3,324	898	1,938
1855	4,435	906	2,024
1856	4,960	1,024	2,502
1857	4,771	1,010	2,910
1858	5,364	934	3,710
1859	6,225	1,097	4,538
1860	7,653	1,084	4,819
1861	4,613	700	3,340
1862	5,038	824	3,521
1863	6,014	787	4,170
1864	6,932	1,063	5,020
1865	10,044	1,937	6,616
1866	15,269	2,723	9,450
1867	21,276	3,597	13,015
1868	20,420	3,705	13,378
1869	19,271	3,644	13,986
1870	19,171	3,273	13,321
1871	19,472	3,364	13,033
1872	18,246	3,090	13,590
1873	20,414	3,248	12,864
1874	21,602	3,181	13,599
1875	21,638	3,094	16,288
1876	21,425	2,697	17,626

TRADE-MARKS AND LABELS.

One thousand eighty-one trade-marks and 650 labels were received for registration during the year. Of these, 959 trade-marks and 402 labels were registered. The fees from this source amounted to $30,855. The yearly expenditure for the examining and clerical work of this division was $4570, or about one seventh of the amount of receipts. The excess of the receipts above the expenditures of this class for the past year thus amounted to more than the surplus of receipts covered into the Treasury from the entire office in 1875, which was $21,795·65.

The fee required to accompany the petition for the registration of a trade-mark is $25. This is not returned if the registration is refused after due examination. If it was the intention of Congress in prescribing this fee that it should be simply sufficient to meet the expense attendant upon examination and registration, it will be clearly seen by the above statement of receipts and expenditures that the fee required is excessively large; but this matter, I am informed, has already been made the subject of a proposed bill by a committee of the House of Representatives.

The fee for recording the title of any printed label is $6. All the provisions of law relating to the recording in this office of prints or labels are embodied in a section of the copyright law of June 18, 1874. A distinction between trade-marks and "prints and labels for articles of manufacture" is there made, but not defined. But as a difference is made both in the protection of law afforded to the proprietors thereof and the fees required from them, the office is compelled to make a technical distinction. This distinction, especially between trade-marks and prints, is very often without a difference.

Neither is there any express provision of law authorizing the declaration of an interference to determine the priority of title between contesting parties to trade-marks, as in applications for patents. But as the law directs the Commissioner not to register a trade-mark identical with another "appropriated to the same class of merchandise, and belonging to a different owner," the office has assumed the power to decide this question between opposing parties. It is highly desirable that legislation be had to clear up the difficulties above alluded to.

The law provides that citizens of foreign countries can register their trade-marks in this office when a similar privilege is afforded by those countries by "treaty or convention" to citizens of this country.

For some years, and until quite recently, it was the practice to record the trade-marks of citizens of Great Britain, it being supposed that the commercial treaty of 1790 between that country and this extended this privilege to citizens of both countries. But, upon being lately informed of this error by the State department, registration of such trade-marks has been refused. Great Britain, by act of Parliament, gives the privilege of recording trade-marks there to aliens as well as citizens. I am informed that a bill has been proposed amending our statute in the respect mentioned, and extending the privilege to all aliens whose countries, by treaty or otherwise, afford citizens of our country a similar privilege.

I earnestly recommend the adoption of the measure as an act of justice and reciprocity.

Counterfeit Half Dollars.

Mr. William E. Du Bois, Assayer of the United States Mint in Philadelphia, warns the public against counterfeit half dollars. He writes as follows:

As these pieces are beginning to show themselves, though not in an alarming quantity, a few simple directions for detecting them may be useful, especially in the stores and shops. Counterfeiters generally content themselves with the cheap and quiet process of casting from molds, though sometimes they strike the pieces from dies. The mold is made from the genuine coin, and yields a *fac-simile*. They use a type metal, somewhat hardened and sonorous by the addition of copper, and the whole being slightly silvered over in a battery, and the "gate" neatly ribbed out on the edge; such a piece may pass while fresh and new. They are, however, rather too white and too thick, or, if of a right thickness, too light. There is something about the genuine coin that ordinarily puts it above suspicion, particularly after the new white surface has given place to the inimitable and permanent "nine-tenths tint." It may be abused by heating or staining, or by contact with gum elastic bands. It has been disfigured with tin foil for the small purpose of provoking a bet. In rare cases it may have a flaw at the edge, or shut in, which destroys the ring. But generally it speaks well for itself as to color and sonority. The genuineness of a half dollar is something worth looking after to any of us, and especially to a storekeeper taking them often through the day. It is, therefore, worth the trouble to have on the counter one or two witnesses, easy to be had. First a balance, which need be no more than a thin strip of wood, eight or ten inches long, neatly poised. Place a good piece on one end and the suspected one on the other, and have a weight of three grains at hand. If the difference is more than that decline taking the piece. A much better instrument would be the one in vogue many years ago, for gold made of brass and taking not only the weight, but also the gauge of diameter and thickness. Any one wishing to see this simple affair, with a view of making it for sale, may call at the office of the Assayer; no doubt it could be sold at 50 cents. It should be adapted to the half and quarter dollar, and perhaps the whole dollar. Second, a liquid test, composed as follows: Twenty-four grains of nitrate of silver in crystals, one gramme (say 15 grains) of nitric acid and one ounce of water. Any druggist can put this up in a small bottle, with a pointed glass stopper made for lifting drops, taking care to use pure ingredients. Remove a little of the surface of the coin by a knife, and then touch the plane with a drop from the stopper. If good, there will be no action; if bad it blackens at once. It should be observed this is not the compound we use for examining gold counterfeits and jewerly; and, further, some persons use nitric acid alone, which will discolor a good coin as well as a bad one. As for the pieces struck from dies, they are generally such poor imitations that the taker almost deserves to lose by them. Such a piece, dated 1876, is now before me; good color, feeble and faulty devices, right weight, but quite too thick. It would be caught by the gauge already mentioned. It is a whitish brass, with silver-plating more substantial than the electro-silvering. It is well that the courts and officers of the law are diligent in arresting this business, while the tellers of the Treasury and the banks throw out spurious offers, so that it will not commonly be necessary to use any other test than the eye.

Influence of Pine Forests on the Rainfall.—Some interesting observations have lately been made by M. Fautral on the influence of pine forests on the quantity of rain received by a country, the hygrometric state of the air, and the state of the ground. It is proved that pines have the property of condensing vapor, and that in a much higher degree than leafy woods. Thus the quantity of rain which fell over a pine forest during 14 months was 840·70 mm., against 757·75 mm. on the open ground 300 meters off, showing a difference in favor of the forest of more than 10 per cent. of the latter quantity. In the case of oaks and witch elms the difference was only 5 per cent. The mean saturation of the air above the forests was ten-hundredths more than at the other station (65 against 55). The quantity of rain received by the forest ground was 471 mm., while 369 mm. was interrupted by the trees—*i. e.*, 0·43 of the water precipitated. Now, though the open (sandy) ground received 747 mm., there is reason to believe that the forest ground really conserves more water. These data show what services may be rendered by pine forests on burning, sandy, or chalky plains, which the want of water renders unproductive. Such forests, too, are a powerful remedy against inundation.—*Medical Press and Circular.*

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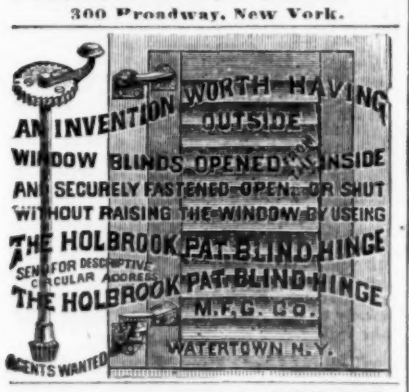

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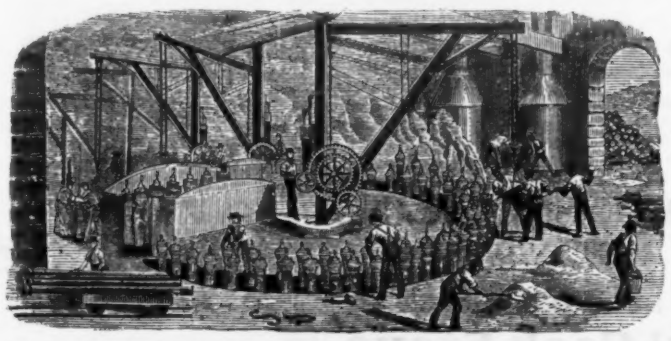

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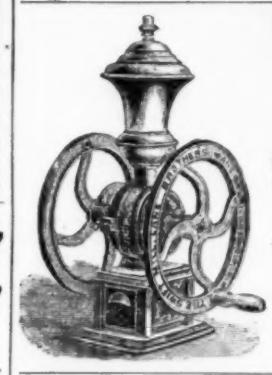

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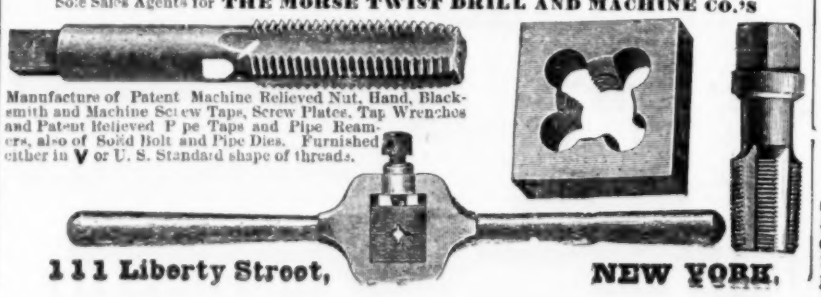

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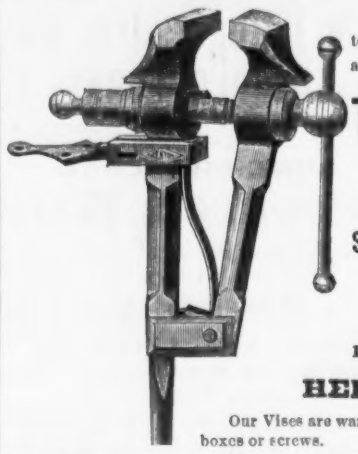

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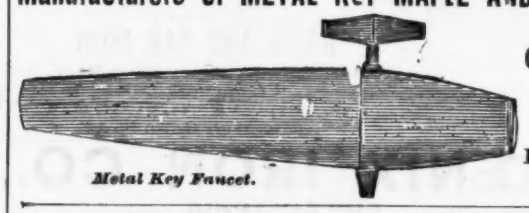

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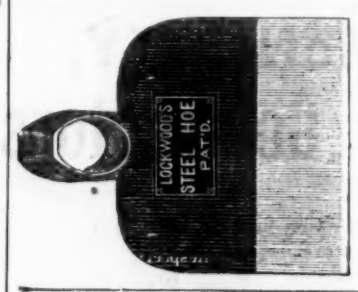

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(Translated from the *Oesterreichische Zeitschrift fuer Berg. und Huettenwesen.*)

Experimental Determinations of the Combustibility of Blast Furnace Gas.

BY EDWARD BELAIN.

(Concluded.)

It is well known that by a greater quantity of limestone flux an increased smoking of the furnace is observed. The blowing out of the furnace No. 1 in Schwechat gave me an opportunity to experiment in that direction. To accomplish the blowing out large quantities of limestone were used, and the gas smoke was, therefore, necessarily more dense. I expected to observe its effect on the combustibility of the gas, and, further, I desired to know in what manner the greater percentage of carbonic acid would influence the combustibility of the gas. Thirdly, at what depth in the furnaces the liberation of carbonic acid from limestone would commence.

Three analyses of the gas before the commencement of the limestone charge gave the same result:

Carbonic acid..... 6·5 per cent.
Carbonic oxide.....29·5 "
Nitrogen .....64·0 "

The gas smoked little, and burnt well with the usual amount of added fuel. After being cleared in the gasometer it burned with a beautiful blue flame. The iron was deep gray; the slag short and dry.

The combination of the charge was: 2500 kilos ore, 300 kilos lime, 50 kilos iron to 1800 kilos coke.

At 2 p. m. 5000 kilos of coke were charged, the hight of this charge being 0·95 meter. An hour afterward the limestone charges commenced, and were finished at 5 p. m. They consisted of 40,000 kilos limestone.

Gas analysis. 1.—5 p. m.

Carbonic acid..... 4 per cent.
Carbonic oxide.....33 "

The gas had not been materially changed; the lower strata of the limestone was already 4·58 meters below the top of the furnace. As the fusion progressed the charge descended with a rapidity of 0·2 meter an hour.

2.—7 p. m.

Carbonic acid..... 3·5 per cent.
Carbonic oxide.....33·5 "

The gas had not much smoke and burnt quite well; limestone charge 4·90 meters below the top.

3.—9 p. m.

Carbonic acid..... 3·0 per cent.
Carbonic oxide.....34·5 "

Gas burned fairly well, some scintillations appearing; limestone charge 5·39 meters below the top.

4.—12 p. m.

Carbonic acid..... 2·0 per cent.
Carbonic oxide.....35·5 "

Gas smoked some, but burned very well; limestone charge 6 meters below the top.

5.—July 6, 6 a. m.

Carbonic acid..... 1·5 per cent.
Carbonic oxide.....33·5 "

Gas commenced to smoke strongly, and burned badly. Limestone charge 7·21 meters below the top.

6.—8 a. m.

Carbonic acid..... 1·0 per cent.
Carbonic oxide..... 34·0 "

Gas smoked heavily, and burned very badly by a strong fire. After being cleared in the gasometer it burned well; limestone charge 7·92 meters below the top.

7.—10 a. m.

Carbonic acid..... 4 per cent.
Carbonic oxide.....30 "

Dense volumes of smoke in the gas. The precipitates on the top of the furnace and flues snow-white. The gas did not burn at all; cleared in the gasometer, it burned well.

8.—12 m.

Carbonic acid..... 2·0 per cent.
Carbonic oxide.....32·5 "

Dense smoke; gas burned very badly or not at all; limestone charge 8·43 meters below the top. At this time the descent of the burden was noticed.

9.—2 p. m.

Carbonic acid..... 4·5 per cent.
Carbonic oxide.....27·5 "

A great deal of smoke and continued bad combustibility; limestone charge 8·83 meters below the top.

10.—6 p. m.

Carbonic acid..... 4·5 per cent.
Carbonic oxide.....27·5 "

Conditions similar to former. A mass of heavy white dust was precipitated; iron dark gray; slags short and dry; limestone charge 10 meters below the top.

11.—8 p. m.

Carbonic acid..... 4·0 per cent.
Carbonic oxide.....27·5 "

Similar appearances; limestone charge 10·57 meters below the top.

12.—10 p. m.

Carbonic acid..... 3·5 per cent.
Carbonic oxide.....28·5 "

Conditions similar; limestone charge 11·15 meters below the top.

13.—12 p. m.

Carbonic acid..... 3·0 per cent.
Carbonic oxide.....29·0 "

The gas did not burn; limestone charge 11·73 meters below the top. It had now reached the boshes, and its rapidity of descent was 0·68 meter an hour.

14.—July 7, 6 a. m.

Carbonic acid..... 0·5 per cent.
Carbonic oxide.....27·5 "
Nitrogen.....72·0 "

The smoke was considerably lessened and the gas burned a little better with scintillations. Limestone charge 15·82 meters below the top and about 2·5 meters above the tuyeres.

15.—8 a. m.

Carbonic acid..... 0·0 per cent.
Carbonic oxide.....28·0 "
Nitrogen.....72·0 "

Very little smoke; gas burning with scintillations; limestone charge 17·19 meters below the top, and 0·83 meter above the tuyeres.

16.—9 a. m.

Carbonic acid..... 0·0 per cent.
Carbonic oxide.....30·0 "

Smoke less; gas burning well without scintillations; limestone charge 18·18 meters below the top. Three tuyeres on one side were found to be out of use; the limestone charge had reached them.

17.—11 a. m., furnace working with three tuyeres only.

Carbonic acid..... 2·0 per cent.
Carbonic oxide.....30·0 "

Dense smoke in the gas, which did not burn any more. At 12 m. the limestone charge had reached the other three tuyeres and the blowing was discontinued.

Each of the above was the mean of three successive analyses. But the composition of the gas remained the same, no matter if taken from the top of the furnace, from the stove or from the boiler pipes. The gas was partly tested with the Orsat apparatus, and partly with the gasometer.

A careful consideration of the results demonstrate that the combustibility of the gas stands in a direct ratio to the appearance of the white smoke. If the smoke grows denser the burning capacity of the gas decreases, and *vice versa*. I further observed that the quantitative composition of the smoke exercises no great influence on its combustibility, except it be accompanied by the depressing effects of the alkaline smoke. Cleared in the gasometer, gas containing 6 to 9 per cent. of carbonic acid burns equally well by any pressure as gas which contains no carbonic acid. I think I am justified, therefore, in saying that the appearance of the white smoke and dust decreases the combustibility of the gas.

In conclusion, I will attempt to answer the second question: What is the origin of this dust?

The blowing out of the blast furnace gave me a favorable opportunity to offer a tangible basis to my vague suppositions in that regard. During the process it was easy to collect larger quantities of the freshly precipitated white dust and subject the same to an analysis, with the following results:

Silicon.....27·77 per cent.
Lime.....37·12 "
Magnesia.....4·98 "
Alumina.....26·58 "
Protoxide of manganese..... "
Sulphur.....3·15 "

99·60 "

The similarity of composition between this dust and the one obtained from the blast stove is apparent, with the exception of the high percentage of sulphur, which is wanting in the latter. Yet this circumstance may be accounted for by the large percentage of sulphur contained in the coke used.

According to its composition, this dust appears to be neither limestone nor furnace material; the large amount of silicon seems to contradict such a supposition. If cinders of coke were present, traces of iron would necessarily be found, but this is not the case. Again, if it were a mixture of these three substances, the chemical composition would not be so constant. It possesses the greatest similarity to a strongly basic slag. In the formation of a slag—a silicate—a very intimate fusion of materials is needed. But, then, how is this fused mass again transformed into a pulverulent state, in which form we find it suspended in the gas? This question found a very surprising, yet plausible, explanation.

The slag at the last tapping of the furnace showed a very singular behavior. It was fully fused, of a greenish gray hue on the surface, conchoidal and light gray in the fracture; as the cooling commenced a very peculiar phenomenon took place. There arose a stormy commotion on the surface, commencing on the borders and gradually extending over the whole piece. It was as if it had suddenly been gifted with life. The result of this process was a fine gray-white powder and a strong smell of hydrocyanic acid.

Wishing to see if the moisture of the atmosphere was not the cause of this singular phenomenon, I took a piece of the slag and left it to cool under the exsiccator over concentrated sulphuric acid. The same again took place. An analysis of the dust is:

Silicon..... 24·30 per cent.
Lime..... 34·51 "
Magnesia..... 5·84 "
Alumina..... 23·07 "
Protoxide of manganese..... 2·77 "
Sulphur..... 9·19 "
Iron..... slight traces.

99·98

In this case the large quantities of lime used to blow the furnace out make it quite possible that a silicate so supercharged with lime might be formed, but how are we to account for its appearance under the usual working conditions of a coke furnace? It is undisputed that the formation must take place even then, as is proved by the white dust taken from the blast stove.

The following may offer the most probable explanation: By the unequal distribution of the limestone flux it may occur; that in some places the limestone is thrown in sufficient quantities to permit the formation of such a slag; but the question, How is, by the high temperature of the blast furnace, the slag, after fusion, again reduced to a pulverulent state? I am not able to answer as yet.

SCHWECHAT, 1876.

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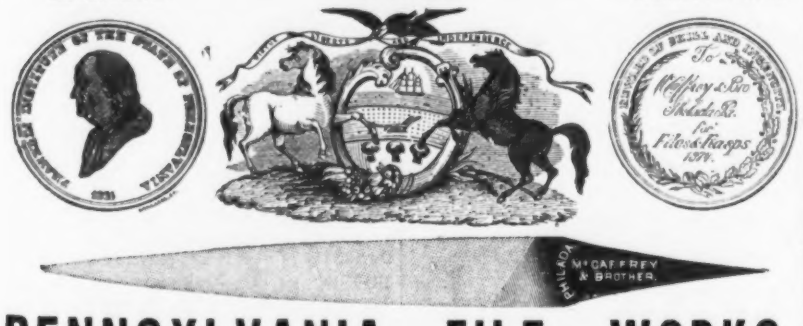

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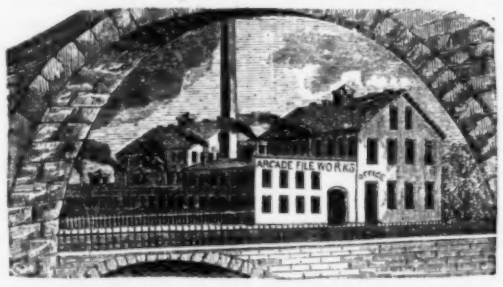

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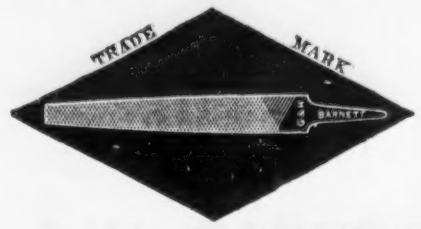

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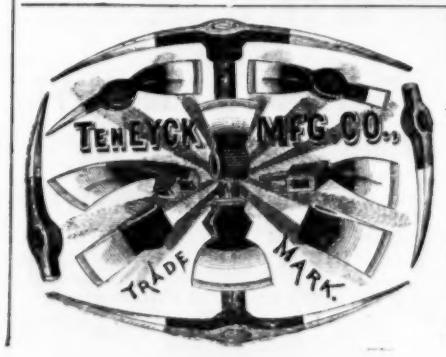

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Steam Navigation on the Pacific Coast.

A writer in the San Francisco *Chronicle* gives the following historical facts respecting the early history of steamboating in California, which will be of interest to all who have watched the steam engineering progress of the past half century:

As a factor of California's commerce, the steamboat is an institution of but a quarter of a century's standing. Its smoke first thickened the vapors of the bay in 1847 from the modest little craft built on the coast of our northernmost possession. In an early publication, under date of October 26, 1849, we read: "Steam communication is just beginning to be adopted in the bay and its upper waters." The "Annals of San Francisco," written some years later, commenting on this fact, says: Just two years before this time William A. Leidesdorff had attempted to run a small steamboat, about the size of a ship's jollyboat, which had been procured from the Russian settlement at Sitka. But this vessel, in February, 1848, was sunk in one of the severe northers that visit the bay, and no steps had been taken to renew the experiment until some time after the gold discoveries made its success certain. Then speculators sent out many proper vessels from the Atlantic States. The Pioneer, a little iron steamer brought out in pieces from Boston, sailed upon the waters of the Sacramento River about a month from this date, and, being the first that had ever penetrated so far into the interior, deserves the title she had assumed. On the 9th inst. the small iron steamer Mint had a trial trip, which was highly satisfactory. She was intended to ply between San Francisco and the towns on the upper waters. This day the propeller McKinn left for Sacramento. Before this time voyages across the bay and up the Sacramento and San Joaquin rivers were made in schooners and launches. These vessels were often detained a week or ten days in sailing that distance, which the steamer now accomplishes in half a day. Both the steamers mentioned sailed each alternative day from San Francisco, and on the intervening days left Sacramento for the return passage. The first charges were $30 cabin and $20 deck. If berths were useed, $5 extra. Meals on board, $2 each. The well known steamer Senator was shortly afterward placed on the same station, and the Mint withdrawn and placed on another. This was the beginning of a very great increase of the transit trade of the bay. Later years have sent numerous large, well appointed and beautiful steam vessels, which have still further developed the interior water traffic and added immensely to the resources of the country.

There is no more tragic page in California's history than that relating to the steamboat. Since the completion of the transcontinental railroad the importance of the institution has declined to a secondary rank. In the days of early California it was of paramount importance, being the only link between the adventurer and a distant home in the East, and the carrier by which the would-be adventurer reached the land of promise. The age was prodigal of life in the pursuit of wealth. Men inured to hardship and danger counted them for naught in the race. Life was nothing, gold was everything. Opposition was the spice of their lives, adventure the sauce, gold the substance. The rush of travel was prodigious. The steamer proprietors cared little for the destruction of life if they only succeeded in landing their passengers a day or an hour ahead of the rival boat, since the bulk of the travel would thus be assured to them. The passengers cared little for the danger so that they only got first to the mines. The steamers, generally old worn-out craft picked up in a hurry and impressed into a service for which they were never adequate, could not stand the prodigious strain of this traffic. They were constantly making the most tragic of ends. The river and bay craft collapsed under the frightful strain, making frightful havoc among their passengers. The ocean-going steamers suffered shipwreck amid the storms and rocks of our perilous coast. The tragic disasters to each class are sufficient for a separate chapter. The present article has to deal with the mishaps of the former class.

Of the steamers whose names were familiar as household words in the early years following the discovery of gold, only one remains, the New World. She survives, the patriarch of pioneer craft, the sole survivor of her generation, and this only by being patched up, mended and rebuilt after repeated sinkings by snagging, collision and explosion, until, to borrow an old saying, it may with much show of truth be said of her that nothing of the original craft remains except the hole in her smokestack. The model of her hull has, however, been preserved, and enabled her to retain the reputation of being the fastest steamer in the bay, earned in the early days when racing was the rule. It must not be expected that the present article will contain a detailed account of all the disasters of the kind spoken of. To do so would fill an entire number of the *Chronicle*. The period was prolific of them. Sometimes two occurred in one day on the bay or the inland waters. Two or three a week was not an uncommon rate of destruction. Hence, only the most tragic of these disastrous occurrences can be mentioned. First in chronological order is the disaster to the Sagamore, a small steamer plying between this city and the interior riparian towns. On the afternoon of October 20, 1850, the Sagamore, while on the point of leaving her wharf for Stockton, exploded her boiler. Her decks were crowded with people bound for the mines, and great was the havoc. The succession of great fires which befell this city in the six years succeeding this date destroyed nearly all the contemporaneous records of the disaster. The existing records that are accessible are discouragingly laconic. They merely state that "thirty or forty persons were killed." In these days people had more important concerns than the recovery and identification of scalded, blackened, disfigured human remains, with whom they had no acquaintance in life and no concern in death.

One of the fiercest rivalries of early days was that for the trade and travel on the river above Sacramento. The steamer Jack Hays, one of the earliest on our inland waters, was overhauled and repaired early in 1853, expressly for this route, after which she took her place under the name of the R. K. Page, as an opposition boat to the Gov. Dana. She started on her first trip under the new order of things on the 22d of March. The Gov. Dana was going up the river at the same time. The proprietors of the boats felt that much depended on the result of the trip, and each resolved that his boat should get to Marysville first. To this end the engineers were duly instructed. Instead of wood or coal, large quantities of oil, pitch and tar, were laid in for fuel. Thus provided, the two steamers cast off and steamed up the river in a desperate race. The crews, fired with a pride in their respective boats, did all they could, and the passengers becoming interested and excited, crowded the decks, watching and cheering on the race, probably thinking nothing of danger, or if they thought, little heeding so that their craft came out ahead. Meanwhile the engineers were below, intent on gaining the race, and the firemen cramming the glowing furnaces of the quivering vessels with fuel. Some distance out it was noticed that the Dana was gaining slightly on the rival craft. The firemen of the Page rolled forward a cask of oil, broke it hurriedly open and emptied it into the flaming furnace. Another and another followed. The vessel took a fresh impetus; and throbbing at every joint of her frame, hissing at every fissure of her red-hot boilers, leaped forward, while her passengers cheered to see her gaining on her rival. Suddenly, as she was passing Nicolaus and closing upon the Dana, she gave a heave, followed by a rush of steam and a crash. Her boiler had exploded, and was driven ahead, demolishing the entire forward part of the boat in a moment. At the moment of the explosion, Daniel Moore, the former captain of the boat, Thomas Kirbey and Lieutenant Henry Moore were standing on the hurricane deck, near the pilot house. Nothing was ever more seen of either of them.

Next came the appalling disaster to the Jenny Lind, a small steamer running between this city and Alviso, the point of debarkment for passengers to San Jose. The Lind took a pleasure party of 125 persons, many of them women and children, for an excursion to San Jose on a Saturday afternoon. On the Sunday morning following, April 11, 1853, she started to return. The day was fine and the party enjoyed the trip. About noon lunch was spread in the cabin, and the gay party gathered round the board with music, laughter and merry chatting. They were scarcely seated when the boiler exploded, tearing open the partition between it and the dining-room, and the festive party was instantly enveloped by the scalding steam which rushed in. The door of the cabin (it had but one outlet) was narrow, and in the consternation of the moment many of those who escaped being injured by the splinters and fragments of the boiler were unable to escape before they were fatally scalded. When the steam cleared away the cabin presented a frightful scene. What had a moment before been a banquet hall was now a chamber of ruin, heaped with the dead and echoing the agony of the maimed. Women gasping in the death agony clasped the lifeless forms of their babes in their arms, and strong men were prone in death. One group was found in a corner. It consisted of Noah Ripley, a pioneer merchant, his wife and their three little children, all dead. In another place lay the body of a young man named William Bell, one of the survivors of the terrible disaster which terminated the career of the old ocean steamer Independence. He had landed but a day or two before from that scene of death by fire and flood to perish thus. Among the victims was C. A. Shelton, the pioneer horticulturist of this coast, who had just returned from the East, and was following his favorite vocation at San Jose, under the patronage of Commodore Stockton. The number who died from this disaster to the Lind was 31.

On the 18th of October, 1853, California had two disastrous steamboat explosions in one day. The unprejudiced reader will probably acknowledge this to be a promising rate of destruction for a population which did not have 20 steamers afloat. The enterprising people of 1853 attained this premium rate, and did not make any demonstration about it. They were not a particularly boastful people. They did not get wild about it and rush down to the newspapers and block up the streets to read the bulletin boards. They did not send out reporters and get out extras with big, black letter headings and diagrams of the explosions and names of the killed and wounded, and interviews with the dying engineer. Not they! They simply stated the fact with a stickful of type and a little heading of one line, that yesterday morning (October 18) the steamer American Eagle, on her way from Stockton to this city, when opposite the locality known as the Three Sloughs, exploded her boiler, blowing the forward part of the boat to atoms, killing one of the crew and three passengers, and wounding eight others. It was also mentioned that the steamer Stockton, bound from this place to Stockton, collapsed her boiler just after passing New York Landing, about 5 o'clock on the afternoon of the same day, whereby one was killed and six others severely scalded, one of whom, Capt. J. B. Sharp, of Stockton, died on the following day, of his injuries. That was all they said, these brief abstracts and chronicles of their time. On Sunday morning, January 8, 1854, the little steamer Ranger, 308 tons burden, running as a ferry between this city and Alameda, while crossing from this city,

(*Continued on page* 11.)

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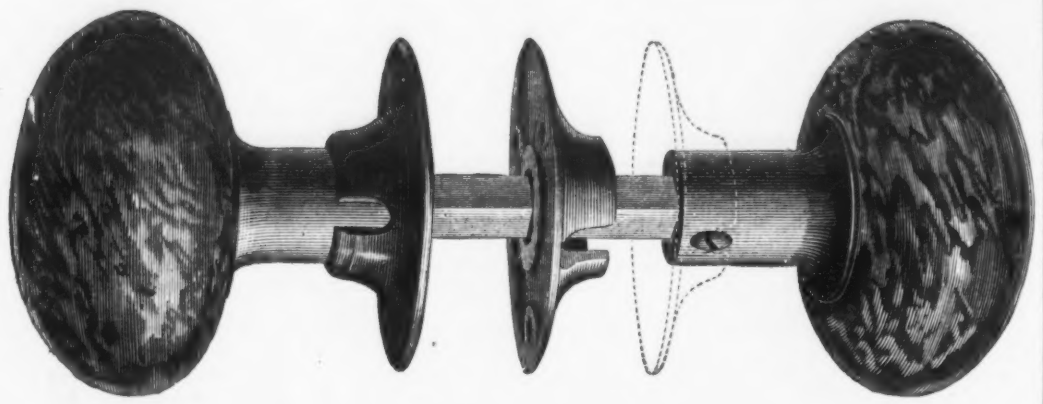

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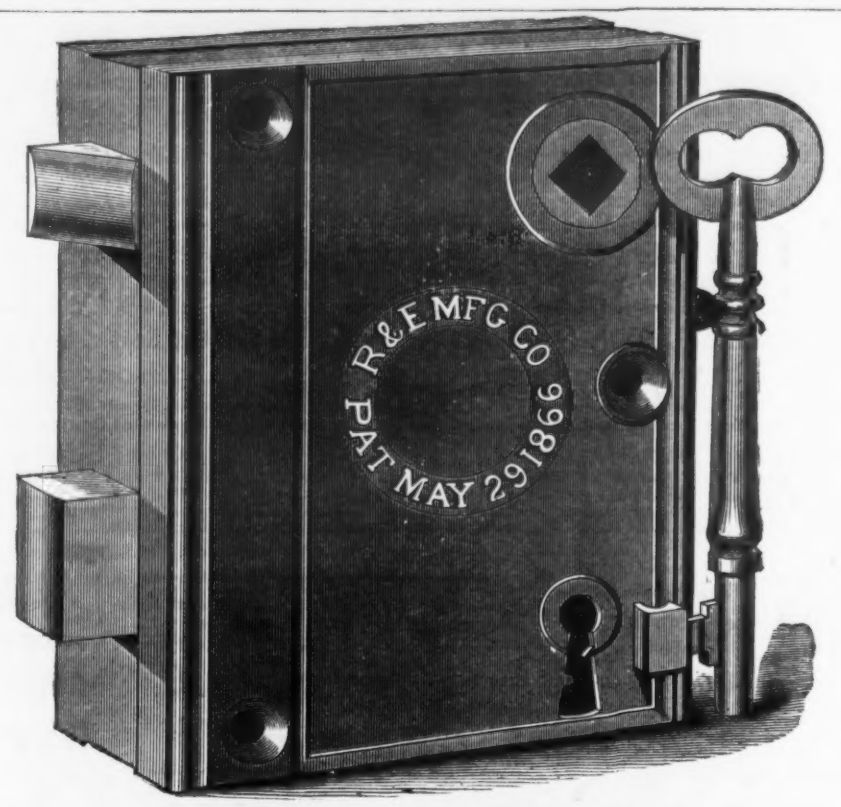

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These goods are furnished with **BRASS-PLATED BOLTS** and **SOLID BRASS KEYS,** and in make and finish are equal to our standard goods.

Discounts, same as on our regular goods.

HOME UPRIGHT RIM KNOB LOCKS.
PULL-OUT REVERSE.

No.	Size.		Without Knobs Per Dozen.
B 861	4 inch.	Janus face, 2 Brass-plated Bolts, Solid Brass Key, without Stop.	$5·00
B 861½	4 inch.	" " " " " with Stop.	5·25

HORIZONTAL RURAL KNOB LATCHES.

No.	Size.		Without Knobs Per Dozen.
B 557	3½ inch.	Brass-plated Latch Bolt - - - - - - - -	$4·00
B 552	3½ inch.	" " and Slide Bolt - - - - -	5·00

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Our prices will at all times be as low as those of any standard manufactures, and we solicit letters of inquiry for quotations before orders are given elsewhere.

Our Screws are all packed in our new Patent Paper Boxes bearing our labels, on which are **Large Figures** denoting the **Size** and **Number.**

We have also a full line of

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which we offer as Manufacturers' Agents, or at Manufacturers' prices. We have in press, and shall soon issue our usual **SPRING DISCOUNT SHEET** with latest quotations, and also **NEW PAGES** to Volume 3, with illustrations of **NEW AND DESIRABLE GOODS.**

(*Continued from page 9.*)

Steam Navigation on the Pacific Coast.

with a captain, engineer, two deck hands and nine passengers, exploded her boiler while on the mud-flats, about 5 miles this side of Alameda. Fortunately the shock threw every one on board into the water, with the exception of two, who died on the steamer. The water was but 3 feet deep, and the survivors, after waiting in vain for the appearance of another boat, waded ashore. Although all were more or less scalded, with the exceptions noted, they recovered.

Ten days later the steamer Helen Henaley, a new boat running between this city and Benicia, while lying in her berth at Jackson street wharf, on the point of casting off her lines, collapsed a flue. The usual crowd of friends and idlers found at a steamboat landing were standing on the wharf, and several of them were injured by the flying splinters and escaping steam. The second engineer and a fireman were killed, and ten persons were wounded. Among the latter were David C. Broderick, afterward the famous Senator, whose tragic fate at the hands of a duellist is still fresh in remembrance; and Will Hicks Graham, a lawyer of considerable note in this State and across the mountains, who died three or four years ago. A moment before the explosion Senator Broderick was standing directly over the boiler at the point of the main force of the explosion. He went forward just in time to escape death.

One of the most appalling of the many disasters of this kind occurring on our waters was that which befell the steamer Secretary, Capt. E. W. Travers. This vessel was running on the route to Petaluma. On the 15th of April, 1854, she steamed away from the wharf in this city, having on board about sixty-five passengers, most of whom were on their way to the Russian River mines. She was followed immediately by the Nevada, the opposition boat, J. H. Cornell, Captain. In anticipation of a race each had stored its fire room with a large quantity of highly combustible fuel. As soon as they were fairly clear of the wharf the struggle began. The Nevada gradually closed with her rival. The engineer of the Secretary saw the competing craft gaining foot by foot upon him. He crammed the roaring furnace with inflammable material in vain. The rival craft came up—she passed him. In desperation he seized a rope and a broken oar-blade and lashed the safety-valve down. Then he plied the furnaces with combustibles anew, and smiled to hear the passengers cheer, as gathered on the deck they watched the struggle. When the well known rocks in the bay, known as the Two Brothers, were reached the two vessels were rushing side by side, a few yards apart, when suddenly the boiler of the Secretary exploded, scattering her human freight, mangled and dismembered, on the waters of the bay, and sending a shower of splinters, broken timbers, iron and brick, high in air. It hailed down on every side and upon the deck of the rival craft. A brick from the Secretary's furnace crashed through the Nevada's pilot house, narrowly missing the head of the man there, and passed out of the other side. Old steamboat men who were present said that they never before witnessed so complete a wreck as that of the Secretary. The boiler and what was left of the hull instantly sank. The Nevada immediately laid to and picked up those floating in the water, but many of those instantly killed sank and were never seen again. The engineer was killed and the captain severely wounded. Among those killed was Captain John Ebbets, an old mountaineer, who discovered Ebbets' Pass, and gave his name to it. He was also a cousin of E. A. Ebbets, at that time assistant engineer of the Fire Department of this city. The number of killed was never exactly known, as no correct register of passengers was kept, and many of the bodies were never recovered, or even seen after the explosion, and of some only members were found; but the loss of life is known to have exceeded 30. The Secretary was owned by Gordon & Steen, and was built upon the hull of the old Gabriel Winter, having been furnished with new boilers and refitted for the Petaluma route during the preceding winter.

Bessemer Steel Statistics.

The *Bulletin of the Iron and Steel Association* says:

We have received full returns from the producers of the production of Bessemer steel in the United States in 1876. Eleven establishments were engaged in its manufacture, but of these the Vulcan at St. Louis did not go into operation until September. Of the others it may be said that some of them if not all could have turned out a larger product than they did if orders had been more abundant.

The number of net tons of pig iron and spiegeleisen converted by the Bessemer process in 1876 was 539,474, against 395,956 tons in 1875, and 204,352 tons in 1874. Of spiegeleisen alone there were used 45,080 net tons in 1876, against 33,245 tons in 1875.

The number of net tons of Bessemer steel ingots produced in 1876 was 525,996, against 375,517 tons in 1875, and 191,938 tons in 1874.

The number of net tons of Bessemer steel rails produced in 1876 was 412,461, against 290,863 tons in 1875, 144,944 tons in 1874, 129,015 tons in 1873, 94,070 tons in 1872, 38,250 tons in 1871, 34,000 tons in 1870, 9650 tons in 1869, 7225 tons in 1868, and 2550 tons in 1867—a total production of 1,163,038 net tons in the ten years during which the Bessemer steel industry of this country may properly be said to have had an existence. It has really had a slow growth until within the last few years.

The number of net tons of spiegeleisen produced in this country in 1876 was 6616, against 7832 tons in 1875. W. P. Ward, of Cartersville, Ga., made 100 net tons of ferro-manganese in 1876.

The average prices of Bessemer steel rails in this country during 1876 ranged from $65 at mill in January to $50 in December.

We believe that not a single steel rail was imported into this country in 1876. In 1873 we imported 159,571 net tons.

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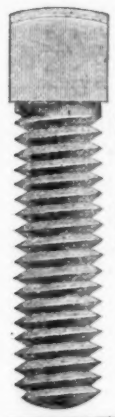

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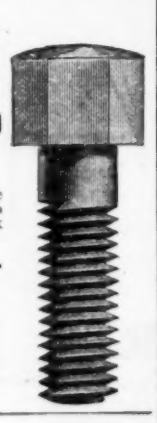

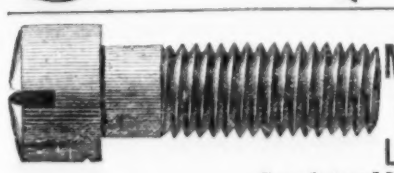

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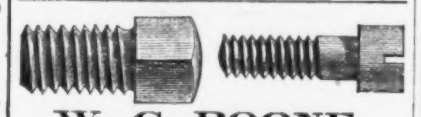

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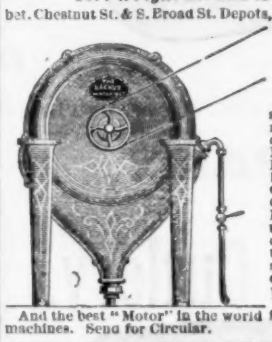

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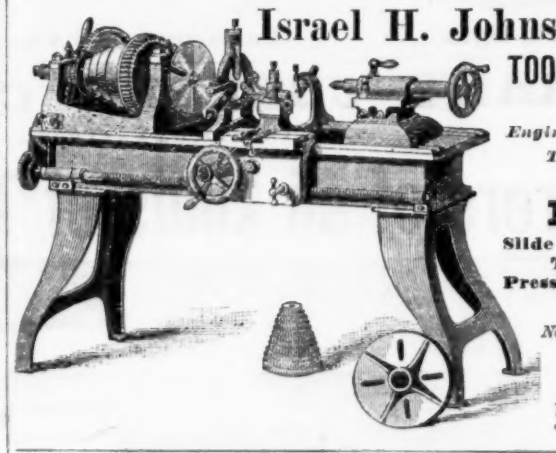

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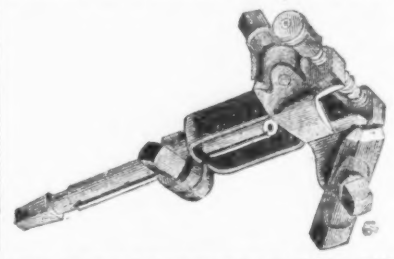

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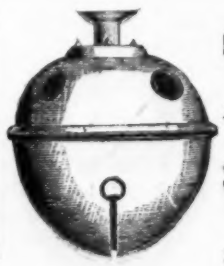

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New York, Thursday, February 15, 1877.

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CONTENTS.

The locomotive engineers of the Boston and Maine Railroad are upon a strike, having left their engines in all sorts of places, or wherever they happened to be at the appointed time. While their demands may be just, we heartily hope they may fail in their attempt to obtain what they wish by the means which they have adopted. The Brotherhood of Locomotive Engineers, although a good thing in itself, is evidently overstepping the bounds of its legitimate province. Its destruction will only be a question of time if it attempts to gain its objects by such unjustifiable means as those which it has employed in this and other similar strikes. We admit that a man may quit work when the terms of his engagement do not suit him, but when he chooses a time to do this which entails damages almost incalculable to the community he commits an outrage of the worst kind upon the public, and one for which he can find no possible justification.

The Business of the Patent Office.

The report of the United States Commissioner of Patents is just at hand, and in another column we publish some extracts from some of the more important portions. It is interesting to note that the number of patents granted in 1876 was greater than in any previous year, being 17,026, but it is also to be remarked that the number of applications for patents was not as large as in either of the two years immediately preceding, and only 1000 larger than in 1873. The table showing the number of patents issued to residents of the different states and territories is a very significant one, as it also shows the proportion of patents to the population. Most of the Southern States are but poorly represented. Alabama takes out but one patent for every 21,600 population, in round numbers; Arkansas takes out one patent for every 21,000 inhabitants; South Carolina one for 22,700, while Massachusetts takes out one in 918, Rhode Island one in 941, and Connecticut one in 730. The District of Columbia shows even better figures, namely, one to 668. Inventors will make their own comments upon the latter fact, and judging from those we have heard they will not be at all complimentary. The territories are evidently too busy in developing their own resources to deal much with patents, although Wyoming has a pretty fair record, having taken out 10 patents during the year, or one to every 1151 inhabitants. On the other hand, New Mexico took out but one for her 111,303 inhabitants. The number of patents taken out seems to be a very accurate index of the industrial activity of a state or territory. Thus the South, with its limited industries, takes out but few patents, while the Northern States, with their very active industries, take out a very large number in proportion to their population.

During the past year some $14,000 was received from various sources beside fees, chiefly from the sale of specifications, drawings, subscriptions to the *Official Gazette*, etc. The amount of receipts above expenses was $105,445·05, showing that the Office is considerably more than self-sustaining. In one sense this is very gratifying, and in another it is not. Government departments were never intended to be means for money making; nor is the rendering of them self-sustaining the sole object of their creation. This is incidental, and though perhaps sometimes desirable, should never be made a leading feature in carrying on a department. The force of the Patent Office is much too small to perform the constantly increasing task which it is called upon to do, and the Commissioner of Patents suggests an increase in the number of examiners and clerks to such an extent as to considerably diminish the amount of the surplus—say, to the extent of one-half—would be most advantageous. How much need there has been for an increase in the clerical force can be seen from the following extracts:

> At times the office, owing to the inadequate amount of help, has been weeks behind in furnishing copies of records needed immediately in pending suits and elsewhere, and in recording assignments which the law requires to be recorded in the office within three months from the date thereof, or else holds void as to subsequent purchasers without notice.
>
> To such an extent has work been thus delayed that attorneys in most urgent cases have been allowed to employ their own clerks at this work, the office at the same time charging them the legal fees for the work which itself was unable to perform. So, too, in the Examining Corps, 21,425 applications for patents have been distributed among 95 examiners (reduced at the beginning of the present fiscal year to 88). This is an average of over 200 applications a year to each examiner.

It would be the greatest folly and injustice to allow such a state of things to continue longer. Patents hold a most important position in our industrial economy; they are the very foundation upon which many if not most of our thriving industries have been built, and we cannot afford to have such difficulties as these thrown in the way of those desiring to use them. To charge the inventor for clerical labor which he is obliged to perform for himself or else loose the benefit of it, is an injustice which we hope will not be perpetrated again, now that public attention has been called to the means by which the trouble can be obviated.

Upon the faithfulness, skill and knowledge of our examiners, in a very large measure, depend the value of patents issued. It is a great wrong to the whole country to grant a patent for an invention which is not new, and to prevent this is one of the functions of an examiner; yet the examiners are so overworked that careful, deliberate search is not possible. In addition to the work mentioned, searches and other things connected, greatly increase the labor beyond what is indicated by the figures. The experience of the past shows that the work of the Office will constantly increase, and the trouble instead of growing less must be greater. The remedy is easy, and it devolves upon Congress to apply it by passing the necessary acts.

It is to this want of sufficient force that some of the blunders made by the Patent Office during the last year are probably traceable. Several times during the year patents have been issued for devices and inventions which were not only old, but, in one instance, was in use among the arts. If an examiner is to be hurried in his work to such an extent that he cannot have time to keep himself posted as to the progress made by the world, nor even have sufficient time to be perfectly certain that the thing has not been previously patented, it is little to be wondered at if old devices are patented as novelties and old patents issued a second time. When we compare the workings of our own Patent Office with those of foreign countries, and note the difference in the systems and the principles by which they are governed, we feel little inclination to find fault with our domestic institution—at least, we do not think adverse criticism just or judicious until Congress has put the office in such a position as to make it possible that the faults shall be remedied.

When Congress gives the Commissioner power to make the changes which are absolutely necessary, we may expect the workings of the Office to become eminently satisfactory. As it is, the United States Patent Office can well be regarded with pride and satisfaction. The amount of work it accomplishes, its character, system and the method in which it preserves its records and makes them available to the public, together with the fact that it is and for many years past has been self-sustaining, are points of which we can well be proud. There may be faults, and grave ones, but still we think our own the best when compared with those of other nations.

Capacity and Production.

As preliminary to what we may have to say on this subject, we think it hardly necessary to state that the term "capacity," as applied to blast furnaces and rolling mills, is a decidedly unknown quantity, and we know of no equation that will give us the value of x. The reason, or the facts that underlie the reason, for stating the capacity of an iron works at a given amount, are as various as the amounts stated. A blast furnace manager will take the largest day's or week's work, multiply it by 365, or 52, as the case may be, and give that as the capacity of the furnace. Another will take the very largest year's run ever made, and that is the capacity. Rolling mills pursue a similar course. It is evident that all such figures must be fallacious, as it is at most very improbable that, with the conditions remaining the same, such results can be obtained continuously. This is an evil that cannot be very well remedied, and our only object in referring to it here is as an introduction to what we may say below.

The trouble with the iron trade to-day is not overproduction. That this is so in regard to pig iron is shown in the constantly diminishing stocks. A comparison of the figures given by Mr. Swank, of stocks on hand at the furnaces, unsold, will show this, and if these tables could be supplemented by similar ones showing the decline in stocks at the mills, it would be still more evident that the consumption of pig iron is in excess of the production.

The same is true of merchant iron of various kinds. We have before us a letter from one of the oldest and largest merchant iron manufacturing firms in the country, in which they say: "We think the stocks "of manufactured iron, bars, sheets and "plates in hands of merchants and consumers are very light." From personal inspection of stocks at the large centers of distribution, both East and West, we are prepared to accept this statement without reservation. In the East the stock of nails on hand Jan. 1, 1877, was 100,000 kegs less than at the beginning of the previous year. In the West the stocks are somewhat larger in the hands of manufacturers and agents, but those in the hands of merchants and jobbers are not one-third what they were one year ago. All this leads to the same conclusion as before—that production is not and has not been for the past year equal to consumption.

It is difficult to realize this. The axiom concerning supply and demand has been so thoroughly interwoven with the political economy of every manufacturer that it is almost an impossibility for them to realize, when prices rule low, that the supply is not in excess of the demand, or, as they put it, that production is not in excess of consumption. The trouble, however, is not with actual production, but with the capacity for production, which is far in excess of what any present demand is likely to be. To show what this excess is, let us take the figures of make and compare them with capacity. The make for the years 1872 to 1876 was as follows:

	Pig Iron.	Merchant Iron and Nails.
1872	2,854,558	941,992
1873	2,868,278	1,076,368
1874	2,689,413	1,110,147
1875	2,266,581	1,097,867
1876	2,050,000 *	.....

* Estimated.

The total annual capacity of the blast furnaces of the country is, according to Mr. Swank, 5,439,230 tons. Allow 33⅓ per cent. of this for the excess of estimate above what the furnaces can actually make, and we have 3,626,163 tons as the estimated amount the furnaces of the country can actually produce if necessary to meet the demand—nearly 800,000 tons in excess of the highest production, and more than a million and a half tons more than the estimated production of last year. Every blast furnace owner in the country is suffering for an opportunity to reduce this difference, and the moment he can see the least ghost of a chance he will sacrifice his feelings and blow in his furnace.

Now let us take merchant iron. The capacity of the iron rolling mills, exclusive of those making rails, is 2,249,460 tons. The allowance for overestimates here should not be so great as with a blast furnace for obvious reasons, but allow 25 per cent. and the estimate of the limit of actual production will be 1,789,568 tons, or nearly three-quarters of a million tons in excess of the largest make of these years. With all this extra capacity scattered loosely over the country, it is useless to talk of any better prices for iron unless it can be in some way controlled. The consideration of the question of controlling production, we defer to a subsequent article.

The Mysteries of Iron.

We present the following choice extract from the Chicago *Journal* as a fair sample of the class of literature to which it belongs:

> The bridge went down at Ashtabula, and—why? Everybody asks the question, and nobody answers it. It went down in the dead of winter, during a cold snap—a well built, patent iron truss bridge went down with a train load of human freight, midst a fearful crash. Men may "pooh" at you when you say that bridge went down by the contractive force of frost. They may sneer, as did the builders of the great iron roof bridge at Troy, New York, a few years since, when a young college student came along during its construction, and said to the contractors: "Look here, men, as I see things, if you don't make more allowance for that iron under the effect of cold, it will likely come down some time." It was a school boy's notion. What did he know about civil engineering? He was dreaming! But only one year later, in the heart of an unusually cold winter, the boasted structure did come down in utter ruin, and when it fell it proved that the boy's notion was a theory; that his dreaming was sound thought. Iron is treacherous stuff at the best. It is subject to all kinds of influences, especially climate and electric, and should never be trusted implicitly. It is dangerous to suspend an iron bridge from bank to bank, supported only by the ends, under any conditions, and it is a question whether it be not dangerous to construct a bridge entirely of iron at all. Much stone should be used, and no expense should be spared in abutments, both at the ends and beneath the center portion of bridges. Calculations should also be carefully made for the effects of heat and cold.
>
> Is it not about time that those who write about iron should know something about it? Hitherto this has not been considered a necessary qualification on the part of those who "write up" such subjects for the general newspapers. We merely throw out this suggestion for the consideration of the conductors of newspapers which like to talk about such subjects, and to enlighten their readers respecting the mysteries of that most practical and commonplace subject—iron. There is a great deal to be said about this metal which the public would be interested to know, but there is no use in abusing it or giving it a bad name, merely because it is a safe thing to "pitch into" when topics are scarce and the hour of going to press uncomfortably near at hand. We rather admire "aggressive journalism" in the abstract, but when we see a writer singling out inoffensive, modest iron for an attack, and then accuse it of treachery, of undue susceptibility to outside influences and of general dishonesty, we think the aggressive policy is carried too far. Our own opinion of iron is that it is very honest stuff, and if those who work it into shape and afterward put it together are only half as honest as the material they handle, we shall have but little occasion to distrust it.

The Position of Lead.

With the approach of spring the position of lead begins to attract the attention of the metal trade. Should the demand come up to expectations, the position on this coast would, at first sight, appear very favorable. The stock in store here does not exceed 900 tons, and the quantity to arrive from San Francisco during the next three months is limited to about 2000 tons more. The arrivals from Utah, on the other hand, have been quite free, being thus far about 1000 tons in excess of last year, and the prospect for an increased production at some points, such as the Granby and Eureka, is fair.

A revival in the demand for lead, if for some reason felt earlier than usual, would find us but moderately stocked, the more so as the government for the entire year will have but about 1000 tons smelted lead to dispose of. Gradually, however, any improvement of note in the price would attract larger receipts from the West, and, unless business proved unusually brisk, we should enter the early summer months, always dull in this metal, with a supply in excess of immediate requirements. Speculation may, however, step in and again strive to obtain the control of the market, thus checking any serious decline.

Production has of late years been steadily on the increase. During the decade, 1837–'46 inclusive, the annual average was 19,030 tons; during the ensuing ten years, 1847–'56, it was 17,656; during 1857–'66, 13,575, and during 1867–'76, 29,571, last year's output alone summing up 57,210 tons.

During the four decades the import was respectively as follows: 72 tons, 15,620, 20,746 and 21,640 tons. The decline since 1868 was as follows:

	Tons.		Tons.
1869	35,111	1873	22,114
1870	28,600	1874	17,674
1871	28,000	1875	7,315
1872	26,355	1876	4,685

The import has been influenced during the long period under review by a great many different circumstances. At first our own production sufficed; subsequently the principal producers in England, Spain and Germany under a low import duty made the United States a convenient outlet for their surplus production. Then the war demand imparted an extraordinary impulse to our import. By degress our home product began to supersede not only common lead, but the better kinds for corroding purposes, and, unless great modifications are made in our tariffs, foreign lead will be practically superseded. As we have had occasion to remark in former articles our production will eventually become great enough to make us seek an outlet for our surplus of lead or white lead, but a great many years will probably elapse before this can be brought about.

In Europe the advance established in the course of last year is only sustained by the prospect of war next spring. Should peace be preserved, the greatly increased production there will in all likelihood force down the price to where it stood last year, or even lower, unless consumptive requirements should swell to proportions not now apparent in the event of a vigorous revival in general trade.

The Survival of the Fittest.

We print on another page a letter signed "Iron," written in answer to a communication signed "Ironmaster," which was printed in a recent issue. It comes from a clear headed, practical, successful furnace owner, and our only criticism of it is that the writer does not seem to realize that the law of the survival of the fittest does not always work rapidly. Since the panic of 1873 a great many furnaces have changed hands. In many instances their present owners have got them for a small part of their original cost, and are, consequently, in a better position than their predecessors in possession to make a profit. These furnaces are not, and many probably never will be, desirable pieces of property to own. There is every probability, however, that those who have acquired these furnaces for half their original cost, or less, will make an effort to run them profitably as soon as the state of the market offers the least encouragement for blowing them in. In some instances the experiment will be short; in others, where, with careful management, furnaces can be run so as to keep them just off the ragged edge of bankruptcy, it may extend over a series of years. Assuming with our correspondent, "Iron," that half the furnaces in the country will never again be profitable possessions, we cannot hold it probable that more than a very small part of the whole number of completed stacks will not be blown in again at some time. Theorctical demonstrations of an inability to make iron profitably in competition with newer, more capacious and more advantageously located furnaces, will not satisfy a majority of those who have come into possession of the plant of bankrupt companies. They will venture the experiment once, any way, and how long they continue it will depend very much upon the amount of their capital and the elasticity of their courage. They will be "weeded out" in time, but not right away. Companies which rest on a slender financial basis die early in times like these, but their works live after them in the shape of furnaces and mills, and the fact that the cost of a plant to an owner is a minor factor in the problem of profitable iron making, is one which few men can learn except from experience. A few years hence more people will understand better than now that a furnace which

does not make iron at a minimum cost will, sooner or later, ruin the man who should take it as a gift.

The Cost of Making Merchant Iron.

No one who is at all practically conversant with the iron trade has the least idea that merchant iron, especially bars, can be manufactured for any such money as it has been selling for the past few months. If it is asked how low it has been sold, we confess frankly we do not know. We have heard rumors of all sorts of prices. We have before us "a special circular of quotations," in which merchant bar iron is quoted at 1 8-10 cents rates, net, and this was said to be a good price. We do not suppose that any man would be foolish enough to take a large order for straight bars at this figure, but it is a very common quotation for assorted orders, and some specifications could get a lower bid than this even, if it were well sprinkled with fancy sizes. In fact, we have heard of a sale of 3-16 round at a price equal to one-half cent rates, Western card. But if we take 1·80c. to 1·90c. to be the price of iron, we shall have a fair average of the quotations made by many firms the past few weeks, and the rates at which they have booked orders.

And we ask squarely is there a man in the trade that believes that good honest iron can be made at any such price? If there is, he is deceiving himself and will discover it to his sorrow. We do not propose at this time to enter into details as to cost of merchant iron, but some facts have come to our notice, within a short time, that show the cost of iron making in a general way. We met a gentleman from the West a short time since who owns his coal, limestone, blast furnace and rolling mill, and is a stockholder in the ore mines supplying him with a part of his ore, but mines himself the larger part. The furnace and mill are well situated in a small town in Ohio, near two railroads with connection in all directions. Taxes, labor, everything is low. The mill has lately been started on an order for muck bar and billets, the price got for the muck bar being $35 per gross ton f. o. b. at the works, and there was only the very smallest margin in it at this. Now add $2 for transportation to the mill that was to use it; assume that the long ton of muck will make a short ton of bars; add $6 for making it into bars, and where is the profit at $1·80 to $1·90. The actual cost would be $2·15. We were present a few days since when three of the best iron manufacturers in the country were figuring on the cost, and the three results were within 50c. per ton of each other, and were even less than $45 per ton for bars. If they were wrong, will some of our good friends at other mills write and show us the error?

The mills save themselves in two ways; first, by their specialties. There is hardly a mill, west of the mountains especially, that does not make something on which they get a good price, which uses up a portion of their product and saves them from absolute ruin. It is shape iron, or agricultural iron, or wagon hardware, or patent shafting, or plates, or fine sheets or something. And in the second place the iron is not always honest. It is either part old rail or cinder iron, or some other miserable stuff that is clean outside, but within it is full of rottenness. We do not say that no honest iron is being made, but we do say that it cannot be made at $1·80. There may be some honest iron sold at this price, but it does not cover cost, and the one selling it must either make up his loss on something else, or if he cannot do that he must "go to the wall," unless he has a long purse and is willing to make iron for glory.

Machine-Made English Watches.

We find in the Birmingham *Post* an interesting account of the manufacture of watches by machinery in England, which is significant as illustrating the remarkable conservatism of British industry. Finding that in watch making hand labor was no longer able to compete with machinery, the more enterprising watch makers have adopted the American system, and are now attempting to make watches wholly by machinery. The reason for this is that not only had American watches practically monopolized the American market, but have lately been competing vigorously with English watches in the British markets. To meet this competition they have had recourse to our methods, but in doing so have taken the precaution to so modify our machinery as to adapt it to the production of the old style of English watch—with 800 distinct parts, more or less—and which are, at best, clumsy, heavy, complicated and costly. There are no differences of opinion among watch makers as to the vast superiority of the American machine-made watch, containing only 158 parts, or less, but they have failed to see that the public taste must accept the simple, improved construction, and rather than attempt to lead persons in the right direction they have adapted machinery to the manufacture of a class of watches which cannot possibly compete, either in price, durability or excellence, with the watches we are introducing into the English markets. We think this investment will prove a waste of capital. English taste is by no means as conservative as English industry. We find the people of Great Britain buying a great variety of our manufactures, but English makers cannot be induced to imitate our goods, because they do not consider them adapted to the English market. We notice the same phenomenon in our competition for colonial trade. The British tool makers either cannot or will not follow our patterns, and the result is that our manufacturers are winning easy victories which they are likely to reap the benefit of for many years to come. We are strongly of the opinion that the five years' difficulty which the English company has experienced in establishing its business would have been avoided had they engaged in the manufacture of the new and improved watches which are crowding, and must eventually drive, the old-fashioned English out of every market of the world.

Work and Wages.

The Sheffield *Telegraph*, of recent date, prints a letter purporting to be written by an English workman in this country, in which the condition of the working classes is depicted in very somber colors. Some of his statements are correct; others, upon which most stress is laid, are either deliberate misstatements or weak inventions. Of the currency of the country, he says:

> The paper money is another of the annoyances which the emigrant, used to the good hard cash of the old country, has to contend with. The writer had stated in a previous letter that nothing but paper was to be had; and it is certainly not very pleasant to get your wages paid in paper on the Saturday, and on the Monday find that the bank has stopped payment, as has very frequently been the case.

When we consider that this letter was written in December, 1876, by a man who claims to have come to this country some years previous to the war and to have been here ever since, it is evident that he has been imposing upon the credulity of the *Telegraph* editor. It so happens that, under our national bank system, the notes of a suspended bank are intrinsically worth more than that of a bank which has not suspended, and as the circulation of State banks has been taxed out of existence, the workingmau need have no anxiety respecting the value on Monday, or ten years hence, of the currency he receives on Saturday. This is one trouble which the American workingman does not experience; and as prices are now practically on a good basis, the small percentage of premium on gold—or more properly of depreciation in currency—does not make it cost him any more to live now than if he was paid every Saturday in coin. The trouble is to earn wages in the present depressed state of industry, but this difficulty is world wide. It exists in Great Britain at this time quite as seriously as in the United States, and any comparisons drawn between the two countries as regards the condition of the working classes would not, even now, be unfavorable to the United States.

Furnace Capacity and the Outlook for the Iron Trade.

To the Editor of The Iron Age: Will you permit another ironmaster, who has also had "a somewhat extended intercourse with iron men," to pay his respects to the "Ironmaster" who gave to the public a very remarkable production, under the above heading, in your issue of January 18. While in your editorial in the same paper you dispose of his crudities in a very satisfactory general way, the subject which he has introduced seems worthy of more elaboration, as the outlook for the iron trade is of vital interest to a great many people. "Ironmaster's" article is a tantalizing one; it starts off by exciting curiosity and arousing hope, only to have the one remain unsatisfied and the other to gradually fade away. One reads and rereads his curious article, to ascertain, if possible, what the author is after, but finally has to follow the example of the boy with the conundrum and "give it right up."

On one point there seems to be little doubt in "Ironmaster's" mind, and that is, that the disasters to the iron trade during the past few years were brought about by "ideal iron men," and the present depression is the result of their blindly continuing to indulge in "a fiction." Now, if we could only be thoroughly convinced of this, it would be a melancholy but great satisfaction to pour the vials of our wrath upon their heads, but "Ironmaster" is so charmingly indefinite and so comprehensively contradictory that he bewilders rather than enlightens. As far as we can gather, his "ideal iron men" were a set of affluent high-flyers, who, without "knowledge of the work * * * but being attracted by the dignity and commanding position of ironmasters, and ambitious to lead while the power seemed to be in hand to obtain a leading position," in 1870, 1871 and 1872 built new furnaces and mills and opened new iron mines. What follows is a little misty: "Herein was the mistake from first to last, and it seems the most wonderful thing in the history of so great an interest in any country, that though discovered and promulgated by a few" (these, of course, practical men), "it was not made the guide for all, and that the fiction should not have been checked before it reached the magnitude which finally completed an overthrow of the entire interest."

What a foolish and shabby trick to be sure for these "ideal men" to go to work building new and improved furnaces, or enlarging and modernizing old ones, and opening new mines, thus interfering with the old-fashioned plants, and the old-fashioned ways, and the high cost and the higher prices of his substantial reliable practical men.

To show how utterly illogical and crude our friend can be, when writing on a subject about which he evidently knows nothing, we make one more quotation and then gladly leave him, with the sad reflection, that if he cannot run a furnace or a mill better than he can write, his establishment will be found among those "that will never more be used at a profit."

He says: "The large and elaborate furnaces must take precedence of the smaller ones on account of their greater capacity—the smaller must give way to the advantages which capital can influence against them in the obtaining of raw material."

If he do not, he ought to know, that the big furnaces have been built since 1870; that the accumulated capital is that of his ideal men, and that these men whom he charges with having ruined a great interest by indulging in a fiction, are the ones who will profitably control the iron trade of the future.

The aggregated capacity of the furnaces and mills now existing is unquestionably beyond the present wants of the country, but is this capacity likely to be called into exercise? Certainly not at the present price of iron, or at any price that it is likely to reach for some time to come.

"Ironmaster" is not far wrong in one conclusion, that as far as furnaces are concerned not more than one-half of those now standing will ever again be used at a profit. In the presence of one of the oldest and most experienced ironmasters of the West, who was personally acquainted with almost every important iron producing locality in the States, the writer ventured to assert this of at least 33 per cent., but was supplemented by this better authority naming 50 per cent. Whatever the proportion may be, one thing is tolerably certain—that, in the main, they are the furnaces that were in existence prior to 1870.

The American furnaces of to-day may properly be divided into three classes:

1st. Those of antique construction and small capacity, that, having outlived their usefulness and opportunity, find their "occupation gone," and are now simply worth the price of scrap.

2d. Those of fairly modern construction, but unfavorable location, which, under forced sales, are in the hands of new parties at nominal figures, together with those of olden style, but exceptionably well located.

3d. Those combining the advantages of modern improvements, large capacity and good location.

The establishments embraced in the first class we need not consider. They have had their day, and must disappear under the inexorable march of events. Those of the second class may precariously exist for a while longer, but their fate is determined for reasons to be hereafter seen. Those of the third class are to-day practically controlling the trade, and will continue to do so, only threatened by works of similar excellence that "ideal men" will hereafter build.

The day for high prices for pig iron has gone by, and very properly so. Bitter as this may prove to the few, the many will be benefited. With the enormous natural resources of the United States, the truest prosperity will come, not with a large profit on a limited production, but with a fair profit on the largest possible production.

We do not want an unwilling competition with foreign producers, but we do want a keen competition among ourselves, and it can scarcely be too sharp, temporarily, for the general good in the long run, for it will prick bubbles, weed out the incompetent and the feeble, compel economy, watchfulness and discretion, and end as the end should be, with the "survival of the fittest."

To be sure this is plain talking, but plain talking is what the hour and day demand. Specious appeals for combinations to support ignorance and recklessness by limiting production to reach higher prices are so many quack medicines, possibly profitable to the maker, but destructive to the public. If one man by natural wit, better knowledge, closer management and more abundant capital can make and sell a standard article at a lower price than another wanting in one or all of these advantages, he deserves to succeed, even should his success prove another's downfall.

Now, this is precisely what is going on at the present time in the iron trade. There is something at work far deeper and more complex than mere overproduction—it is the deadly struggle between the old and the new—between modern and obsolete ideas; it is the establishment of a great vital industry on a new basis; it is the readjustment and relocation of the iron business of the United States.

The panic only hastened the day of reckoning and of change, and men accustomed to look no deeper than the surface have deluded themselves with the idea that low prices were only the result of the panic and would soon pass away, and so struggling against what they could not see, but which was not the less inevitable, have grown weaker and weaker, cutting and underselling to bridge over the present or to bolster up a tottering credit, compelling solvent concerns to follow suit to hold their trade, again cutting from the same causes, only finally to give up from sheer exhaustion.

These are the men who have been indulging in a "fiction," and while this weeding process is going on we cannot look for any marked improvement in prices, even with an active demand and an improving condition of general trade. These preliminary observations have seemed necessary to prepare the ground for reaching intelligent conclusions regarding the future of the furnace business, of which we will treat, with your kind permission, in a subsequent paper.

IRON.

Scientific and Technical Notes.

During the past few years the

INDUSTRIAL USES OF GLYCERINE

have so increased as to make this substance a very important article of commerce. It is employed to keep modeling clay in properly moist condition. It is excellently adapted for the preservation of articles of food, and especially of fruits which require to be kept in a moist condition. It is used in the manufacture of liquors, essences, and the like, as a sweetener; and its sweetening and preservative properties have caused it to be largely employed as an addition to wines and beer. As a lubricant, especially for fine machine work, such as the working parts of clocks, watches, chronometors, sewing machines, glycerine has been found well adapted, in virtue of its non-liability to decompose or freeze, and its indifference to metals. It has been found to make an excellent copying ink, when added in small quantity to such writing fluids; letters written with ink to which glycerine has been added do not require the wetting of the copying paper, but may be copied dry even for some time after writing. In virtue of its property of keeping the skin soft and moist, glycerine is employed pure, and in a number of preparations (glycerine soap, pomatum, etc.), and medicinal mixtures, as a cosmetic, in cases of burns, catarrhal affections, etc.; and from the same property of this substance—its avidity for moisture—it has found application in several industries, such as paper making, weaving, dressing of leather, etc., where it is found desirable to give to fabrics great softness and flexibility, and do away with the subsequent tendency of such articles (as leather belts and the like) to dry and crack. It is extensively used as an ingredient of printers' rollers. As a solvent, glycerine occupies an important place in medicine and the arts; it is particularly valuable as a solvent for gum arabic, as also in paste. Glue, by continued digestion, is soluble in glycerine, gelatinizing on cooling. Glycerine dissolves aniline violet, alizarin, and alcoholic madder. A solution of aniline colors in glycerine is often used for stamping with rubber hand stamps. Glycerine is employed to extract the perfume from flowers, and the aromatic principle of red peppers. Sulphate of quinine dissolves in 10 parts of glycerine when hot, but when cold, separates in clots, which, when triturated with the supernatant liquid, gives it the consistency of a cerate, very useful for frictions and embrocations. Fifty parts of warm glycerine will hold in solution, when cold, one part of salicylic acid. Three hundred parts of water may be added without causing precipitation. A mixture of carbolic acid and glycerine has been suggested as a preservative agent for green skins, as a substitute for the salting generally practiced. The carbolic acid increases the preservative effect of the glycerine, while the action of the latter keeps the skins perfectly soft and fresh, just as they were directly after slaughtering. One of the most important applications of glycerine is its use in wet gas meters. Water possesses the disadvantages of freezing in winter and of evaporating in the warm seasons, while a mixture of equal parts of glycerine and water is free from both of these evils. A few drops of glycerine in mercurial gauges, etc., have been found to prevent the formation of the objectionable slimy film that shortly makes its appearance on the surface of the quicksilver column. It has been recommended for keeping guns and pistols clean and free from rust. It is found well adapted for the preservation of anatomical preparations and for the saturation of barrels intended to contain petroleum, etc. Lastly, it is employed in great quantities for the production of that most powerful and valuable of all known explosives, nitro-glycerine, made by a treatment of glycerine with a mixture of sulphuric and nitric acids. We have no figures at hand from which to estimate the total magnitude of the glycerine industry of the world, but its extent may be imagined from the statement that in the United States alone there is annually produced not less than 2,000,000 lbs.

We find in a recent number of an English journal, the name of which we do not now recall, a very remarkable story in regard to the discovery of the

IRON WORKS OF THE PHARAOHS,

which, it would seem, according to this account, were of a very extensive character. The story runs that an English gentleman, traveling near Sinai, was struck with the small blue stones he discovered in the dried-up water courses which in the rainy season convey the thousand streams that hurry to the sea, and having the curiosity to bring some home, he soon discovered that they were turquoises of no common order. This determined him to make further researches. Eventually he has built a house near the junction of the Wady Kenuch, the Wady Mokatteo, or written valley, and the Wady Megham. Here aided by the friendly tribes he has taken into his pay he has discovered old turquoise mines of the ancient Egyptians, the rocks that they worked for the stones, the very tools they used, and their polishing and grinding places. Being a man of much energy, he has brought to bear upon this fortunate discovery the advanced knowledge of our times, and he is obtaining and sending over to this country some of the finest specimens of turquoises that exist. In such a lonely spot he naturally has not confined his attention to this one subject only, but has traced out the system of fortifications by which the Pharaohs protected their works and workmen, and, what is still more wonderful, has come upon the remains of vast iron works—so vast, indeed, that many thousand people must have been employed upon them, unless the plan used was on quite as grand a scale as that of the largest furnaces in the north of England. These works stand adjacent to the mines, on some hills at a place called Surabit-et-Khadia, and were evidently conducted on the Catalan system (in the opinion of the discoverer). This ore was very imperfectly extracted—slag brought over to England from the immense heaps that like mountains are piled around, contained as much as fifty-three per cent. of iron. The district has remained unexplored, probably on account of its being out of the beaten track, and in an unknown country there is no temptation to stray, particularly as the guides and dragomans discourage any explorations which may add to the risk of the journey.

At a recent meeting of the North Staffordshire Mining Institute, Mr. Wardle, of Bersiem, read a paper upon

AIR IN MINES,

from which we condense the following interesting facts: It is found that the temperature of the earth increased with the depth at about 1° Fah. for every 50 feet to 60 feet. At the deep coal pit at Dukinfield the temperature was constantly 75° Fah. at a depth of 2151 feet, and at a depth of 17 feet it was only 1° Fah., which gave an increase of 1° Fah. for every 89 feet only. The average degree of temperature of the earth was 1° Fah. for every 55 feet in descent to a depth of 1800 feet, and afterward 1° Fah. for every 44 feet. At 10,000 feet the temperature would be 212° Fah. provided all other circumstances remained the same; at 20 miles, 1760° Fah., and at 50 miles it would be 4600° Fah., heat sufficient to melt any known metal. Thus, the deeper the shafts of their coal mines the greater the amount of natural ventilation they would obtain. A current of air traveling at a speed of 10 feet per second gave a pressure of ·492 lbs. to the square foot; at 16 feet = ·989; at 51·34 = 6·027, and at 200 = 39·2, as experienced on the surface of the earth. These might be described as first, a breeze; second, a light gale; third, a gale, and fourth, a hurricane. Increased velocity of wind meant greater friction or higher water gauge. Air was perfectly elastic; by pressure it could be squeezed into less bulk, and if that pressure were withdrawn it filled the same space as formerly. Heat had the same effect upon it as pressure. A cubic foot of air weighed 523 grains; a cubic foot of water weighed 1000 ounces; a cubic foot of watery vapor weighed only 272 grains. So that the more vapor there was in the air the lighter it would be. Friction was estimated by the force required to overcome it. Friction of air increased or decreased in the same proportion that the extent of the rubbing surface exposed to the air increased or decreased. A circular airway offered less resistance in proportion to its area than any other form, because its circumference was less in proportion to its area than the perimeter of any other figure. Airways should be as large and with as smooth a surface as possible. Splitting the air current was preferable to taking the whole current of air round the workings in one body. Generally speaking, splitting the air increased the quantity of air obtained by a given expenditure of power, but the benefits to be derived from splitting were limited by the area of the shaft.

The Philadelphia *Ledger* says: Apropos of the uncertainty and delay attending the arrival of ocean steamships from foreign seaports, and the difficulty of establishing communication with them while at sea, an exchange wisely suggests that the steamship companies utilize

CARRIER PIGEONS

as a means of communication between their vessels and either the port of departure or the port of destination. A number of ocean steamships are now from a week to a month overdue, among them the Colombo, of the Wilson Line, plying between New York City and Hull, which is now overdue 31 days. The Anglia, of the Anchor Line to Glasgow, was overdue 31 days before she was heard from, and other steamers of more or less importance in maritime circles are now anxiously looked for. Had these vessels been provided with carrier pigeons, their fate and the cause of their delay might have been known long before this time by their owners and friends of passengers on board. The use of carrier pigeons passed into desuetude to a certain extent with the advent of the magnetic telegraph, although they are still used with success in some parts of Europe by minor journals. In France and Belgium the proprietors of many newspapers raise carrier pigeons in their offices, and when a correspondent or reporter is dispatched for news to some place not readily accessible or off the line of the telegraph, he takes with him from three to six of these faithful carriers, and dispatches them with news at intervals. Upon their arrival at their destination the news thus received, where unusually important, is published in "extras." It will interest our readers to know that the project of using carrier pigeons as a means of communication between vessels at sea, and their ports of destination and departure, has really received much consideration by various steamship companies, and it is probable that these birds will be introduced on board many of the steamers plying between this port and foreign lands during the coming year. The Transatlantic Steamship Company have already commenced the experiment in foreign ports, and it has thus far proved entirely successful. The company bought forty pairs of the best breed of Antwerp carriers two years ago and divided them between this city, Port de France, St. Thomas, and St. Nazaie, and established a central loft in the latter port. As it takes four years for a carrier to arrive at maturity, the success of the enterprise has not yet been demonstrated in this country. There are four varieties of high-bred pigeons, the pouter, Antwerp carrier, short-faced tumbler, and barb. Of these, the only breed which can be utilized as a dispatch-bearer, is the Antwerp carrier. A glance at the physical construction of these birds will readily demonstrate this fact. The pouter is the largest of the several varieties, the males being 19½ inches long from the end of the beak to the tip of the tail, while the legs, from the thigh joint to the tip of the middle toe, measure seven inches. Feathers cover the legs and feet of these birds, and they have a wind-sack over their crops, which, when they feel in particularly high spirits, they expand to a considerable extent, and assume a pouting appearance, from which they derive their name.

Railroad Construction in 1876.

We condense the following from the *Railroad Gazette:* Our detailed record of the new railroads constructed in the United States in 1876 shows that during the year 105 railroad companies laid track on 2412 miles of railroad, increasing the total length in the United States to 76,640 miles, which, according to the best estimates of the population at this time, gives one mile of railroad for every 600 inhabitants. We have now kept a careful record of the exact mileage laid within each calendar year for five years. The first of these years, 1872, was the culmination of the great era of railroad construction. During the five years preceding, according to Poor's Manual, 23,700 miles had been constructed in this country; for the six years ending with 1872 the average construction had been 5170 per year, and in eight years the mileage of the country had been doubled. The progress since this culminating period will be seen by the following:

Year.....	1872.	1873.	1874.	1875.	1876.
Miles constructed.	7,340	3,883	2,025	1,561	2,442

The greatest inactivity was but a little more than two years after the time of the greatest activity; for the great dullness did not extend throughout the year 1875. As we said in our review for that year, a larger proportion than usual of the mileage built in 1875 was constructed in the latter half of the year. We had news of but 22 per cent. of it at the middle of the year, and the greater activity in the last half indicated some slight revival in railroad construction. This was confirmed by the experience of this year, when, as we see, 888 miles, or 57 per cent., more was constructed than in 1875. This year, however, the proportion completed in the last half of the year has not been extraordinary—about 70 per cent. of the whole.

In one particular the work of 1876 was much like that of 1875; to a very great extent it consisted of the construction of local lines of no great length.

There was, however, a greater number of long lines built than in 1875, and the average mileage is greater than for two years previous, as is shown below:

Year.	No. of Companies.	Total Constructed.	Average Each.
1872.....	210	7,340	miles.
1873.....	137	3,883	3 "
1874.....	105	2,025	19·3 "
1875.....	94	1,561	16·6 "
1876.....	105	2,442	23·3 "

Last year there were eight companies which constructed 50 miles or more each; in 1875 there were but six such companies. The eight companies with the largest mileage constructed built 498 miles of road in 1875; this year they constructed 898 miles. No company constructed as much as 100 miles in 1875; five have done so in 1876, and one of them nearly 200 miles.

The distribution of the construction of the last year is peculiar. Nearly one-half of the new road is in four of the 38 states. For some years Illinois led in the mileage constructed yearly, as it still does in total mileage. The seven states and one territory which we have included in the "Northwest" in 1872 embraced 42 per cent. of the new road of the year. In 1873 they had but 29 per cent.; in 1874, 25 per cent.; in 1875, 23 per cent.; in 1876, less than 22 per cent. It no longer is the great field for railroad building. Illinois, which built 686 miles and 9¼ per cent. of the whole in 1872, has but 49 miles and 2 per cent. of the whole in 1876. But Texas built very nearly as much last year as ever before, and a much larger proportion of the whole, taking the lead of the states with 388 miles and 16 per cent. of the whole. California follows with 350 miles 14⅓ per cent. of the whole; then Ohio with 270 miles and 11 per cent. of the whole. The fourth place is taken by Colorado, the newest of all the states, with 155 miles of road and 6⅓ per cent. of the whole. The only other states which have more than 100 miles of road are Kentucky, in which the city of Cincinnati has built 138 miles in a single line; Wisconsin—where the Potter law had reinforced more natural causes to prevent construction for two years previous, but which last year celebrated the repeal of the law by leading the Northwest in mileage constructed—134 miles; and Missouri, which has 109 miles.

The greatest length constructed by a single company is 196 miles by the Southern Pacific. Then follow: Cincinnati Southern, 138 miles; Texas and Pacific, 120; Columbus and Toledo, 117; Denver and Rio Grande, 108.

Ohio is the only one of the older states which shows a large mileage; there has been unusual activity there, and most of it in constructing local roads, many of 3 feet gauge. The roads there seem to be constructed almost wholly from home capital, and largely by those who expect to use them; and this may be said of most of the roads of 1876, even in the newer states. They have been built because their projectors expected profits from their earnings, and not, as very many were in 1873 and before, because the projectors expected profits from the work of constructing them.

There were eight states and nine territories in which no railroad was built in 1876. Two miles were built in the Indian Territory; all the rest in 30 states.

New England and the Middle States, which in 1875 seemed little affected by the dull times, and then constructed 35¼ per cent. of the total, last year were less active than for many years, and built but 12¾ per cent. of the whole. The South, including all that territory south of the Potomac, the Ohio, and the State of Missouri, made a great advance over 1875, constructing 712 miles against 105. More than one-half of of this new construction was in Texas, but the increase is great over the construction of 1874 also, and with Texas excluded, and this notwithstanding the fact that in four Southern States no new railroad was built last year.

Our record notes a total length of 597 miles of narrow gauge roads completed in 1876 (48 miles of 3 ft. 6 in. and the rest of 3 ft. gauge). This mileage is on 32 different roads and in 19 different states. There is now a considerable system of such roads in Colorado and Utah, and a considerable number of the roads (though generally not connected into a system) in Pennsylvania, Ohio and California. They are pretty sure to continue to increase unless other light and cheap railroads of standard gauge be introduced. The new lines likely to be most needed hereafter are railroads which will take a place between the public highway and those intended for fast trains and a heavy traffic. For such lines, usually not very long, there is doubtless room now in many parts of the country. They will be mostly short, and probably (unless the existing railroad companies undertake them) projected, constructed and wholly or chiefly paid for by the communities which are to use them.

The chief lines now in progress which may construct a considerable mileage during the current year are the Cincinnati Southern, which will almost certainly complete its line to Chattanooga, across Kentucky and Tennessee; the Southern Pacific, which will probably reach the Colorado at an early day, and perhaps make a considerable advance into Arizona; and the Texas and Pacific, which will probably do something under any circumstances.

Coal Matters in Philadelphia.

The *Daily Bulletin*, of the 12th inst., says: At the private meeting of the managers of the New Jersey Central Railroad, the Lehigh and Wilkesbarre Coal Company and the Lehigh Coal and Navigation Company, held in this city on Saturday until a late hour, it was determined that the only way out of the embarrassments of the Lehigh and Wilkesbarre Coal Company was through a receivership. It was therefore agreed that application should be made for the appointment of three such receivers at some of the courts of this State early this week, or so soon as the conclusion should be reached at the meeting in New York to-day, between the representatives of the same companies, to decide upon the appointment of a receiver for Jersey Central also. This forenoon application was made at Pittsburgh for such appointment, and it was said it would be granted, the persons to be appointed even being named. One in the interest of each of the companies concerned, namely, President Clark, of the Lehigh Navigation; Treasurer Tillinghast, of the Lehigh and Wilkesbarre, and Chancellor Williamson, of the Jersey Central, all of whom were at the meeting here of Saturday. As this movement had been expected here since Saturday, it had not the effect upon the securities of the coal companies that might otherwise have been expected, yet a decline followed it, and was also stimulated by the equally inevitable fate of Jersey Central, which was considered sealed when advices came from New York stating that its account in the Bank of Commerce had been attached by judgment creditors. The few holders of Central securities in this city, who had hoped that some way of deliverance would be found for the company, resigned themselves to the worst or sold their stock. Some, however, were inclined to place new hope in certain schemes in embryo looking to another way out of the troubles of both companies by consolidation with the Lehigh Navigation, under a plan of which the following is a general outline: The plan suggested is that the Central, the Navigation and the Lehigh and Wilkesbarre Coal Company should be consolidated under one head, and that preferred stock should be issued to the holders of the Lehigh Navigation stock in full for its capital, and that the common stock of the consolidated company should be issued to the holders of the stock of both the other companies as well as to the holders of the floating debt of the two. The argument used to show the feasibility of this scheme is that unless such a course is taken there will be a foreclosure by the bondholders, which would wipe out the entire property of both and leave the stock and floating debt holders without anything, while under one management the stock would be of considerable immediate value, with a greater prospective one, as the new company would have no indebtedness to lug it down; and that, with the Navigation in good financial condition, the earnings of the consolidated line would be ample to pay interest dividends on preferred stock and ultimately on common. The plan was submitted at the New York meeting to-day by telegraph from here, we are told.

Another rumor, coming by wire from New York, had the information (?) that there was the possibility, in case of a receiver for Jersey Central, of the Lehigh Navigation being leased by the Delaware, Lackawanna and Western Road, and the recovery in the latter stock in New York from the lowest point of the morning was attributed to this rumor. But the idea was laughed at here among the well-informed, and we found no one to give it credence, not even the receiver of the dispatch, who admitted it was sent in relation to some stock transaction. Yet there were those who would believe it or any other improbable occurrence, so shaken has confidence become in all corporate management and securities, and any make-shifts are thought probable.

Mr. John A. Blake, manager of Blake Brothers Hardware and Crusher Company, died suddenly Saturday afternoon the 3d inst. while engaged in pickerel fishing on Lake Whitney. He was born in Westboro, Mass., in 1808, and has been for the past forty years a member of the well known firm of Blake Brothers, and a prominent and respected citizen of New Haven.

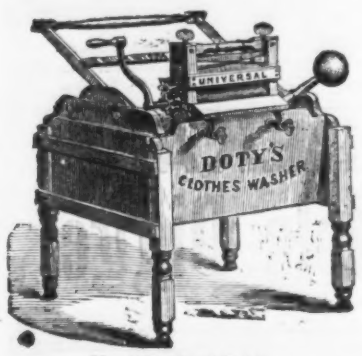
METROPOLITAN WASHING MACHINE COMPANY

32 Cortlandt Street, New York.

MANUFACTURERS OF

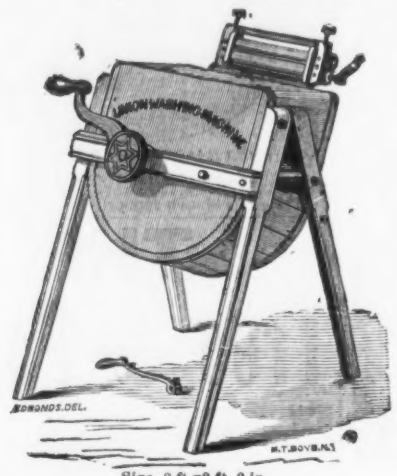
CLOTHES WRINGERS, WASHING MACHINES AND MANGLES.

DOTY'S IMPROVED CLOTHES WASHER.



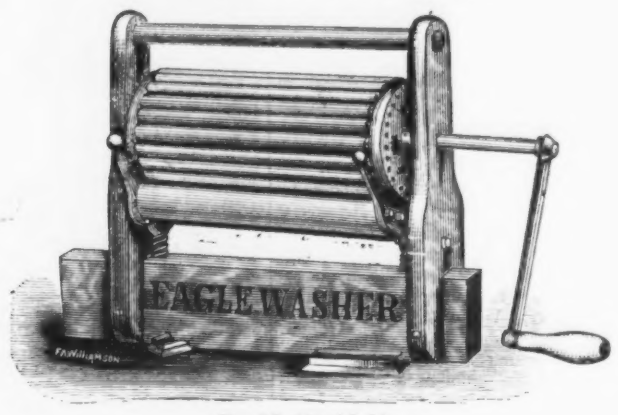
Size, 2 ft. 4 in.x2 ft. 5 in.
Family Size, $14 00; Wholesale, $9 50.
Hotel " 16 00; " 11 00.

UNION WASHER.



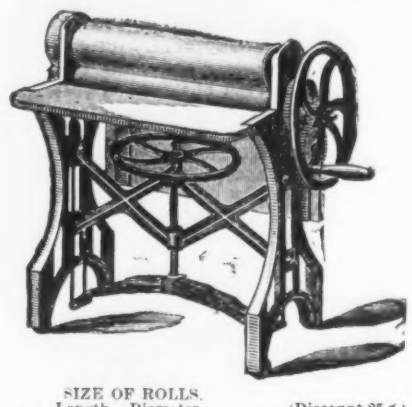
Size, 3 ft.x2 ft. 2 in.
Retail, $18 00; Wholesale, $12 60.
With Wringer, $27 00; Wholesale, $18 50.

EAGLE WASHING MACHINE.



Size, 2 ft. 4 in.x1 ft. 2 in.
Retail, $8 00; Wholesale, $5 00.

AMERICAN MANGLE.



SIZE OF ROLLS.	Length.	Diameter.	(Discount 25 %.)
No. A,	33 in.	6 in.,	worked by hand... $100 00
" B,	33 "	6 "	Steam power..... 125 00
" 1,	24½ "	6 "	" " 100 00
" 2,	26½ "	6 "	worked by hand... 75 00
" 3,	23 "	5¼ "	" " ... 50 0

"UNIVERSAL," "NATIONAL" AND "RELIANCE" CLOTHES WRINGERS.

NATIONAL, No. 3.

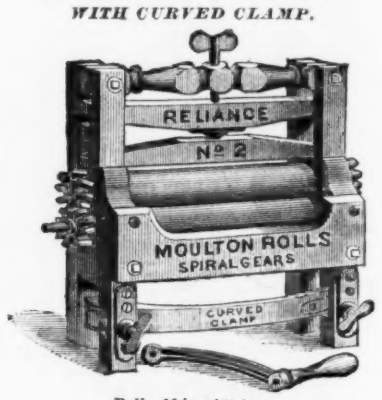
Rolls, 10 in.x1¾ inch.
Retail, $6 50; Per doz., $57 00.
Has Galvanized Malleable Iron Frame. Swivel Clamp, Fits Round or Stationary Tubs.

NATIONAL, No. 2.

Rolls, 10 in.x1¾ in.
Retail, $7 50; Per doz., $66 00.
Galvanized Malleable Iron Frame. Can neither Break, Rot nor Rust.

RELIANCE, No. 2.

WITH CURVED CLAMP.



Rolls, 10 in.x1¾ in.
Retail, $7 50; Per doz., $63 00.
Moulton Rolls, "all white Rubber." "Spiral Gears" at both ends.

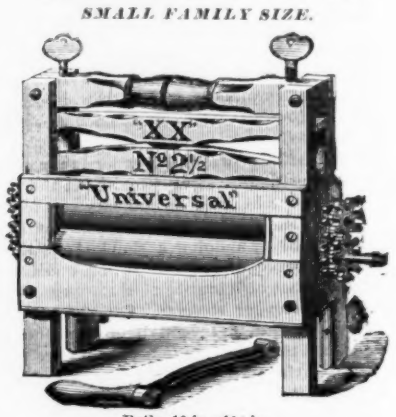
UNIVERSAL, No. 3.

(Friction.)

Rolls, 10 in.x1¾ in.
Retail, $6 50; Per doz., $54 00.
Frame the same size as No. 2. Has usual Clamp for Round Tubs.

UNIVERSAL, No. 2½.

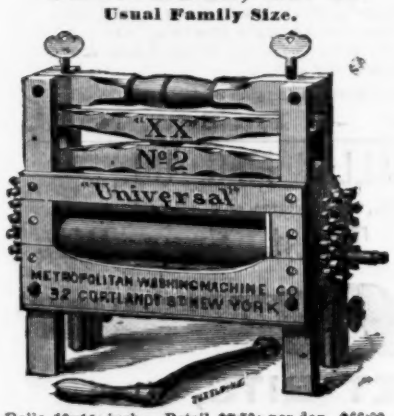
SMALL FAMILY SIZE.



Rolls, 10 in.x1¾ in.
Retail, $7 00; Per doz., $63 00.
Frame the same as No. 2, Universal. Rowell's Cog Wheels at both ends

UNIVERSAL, No. 2.

Usual Family Size.



Rolls, 10x1⅞ inch. Retail, $7·50; per doz., $66·00.
Over 500,000 of this size have been sold. Rowell's Cog Wheels at both ends.

UNIVERSAL, No. 1½.

Large Family Size.

Rolls, 11x1¾ inch. Retail, $8·50; per doz. $74·00.
Swivel Clamps. Fits Round or Set-Tubs. This size having longer Rolls and greater capacity than No. 2, wrings large articles with greater ease, and with less strain on the machine.

UNIVERSAL, No. 1.

Hotel or Laundry Size.

Rolls, 12x2 inch. Retail, $12·00; per doz. $96·00
The Best Set-Tub Wringer ever made. Swivel Clamps: arranged to swing either way. Wrings backward and forward from either side.

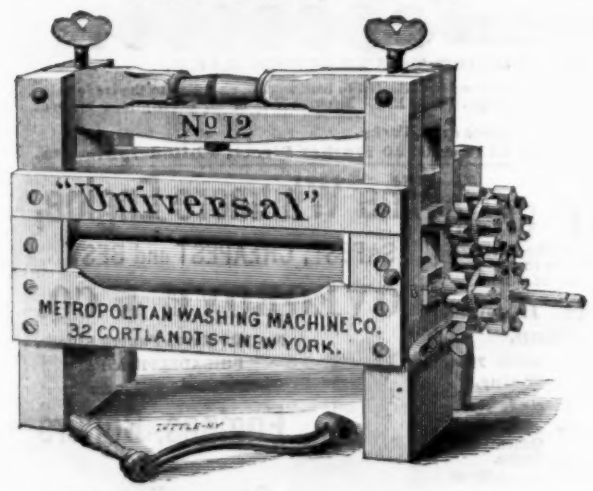
UNIVERSAL, No. 8.

Large Hotel Size.

Rolls, 14½x2¼ inch. Retail, $16·00; per doz, $144·00.
Adjustable Lever Clamps. Fits tubs of any thickness. Rowell's Double Cogs, with Alternate Teeth, so long they never play out of gear. This Wringer is much used on Set-Tubs in Hotels and large Laundries.

LARGE SIZES TO RUN BY POWER IN HOTELS, LAUNDRIES AND FACTORIES.

UNIVERSAL, No. 12.



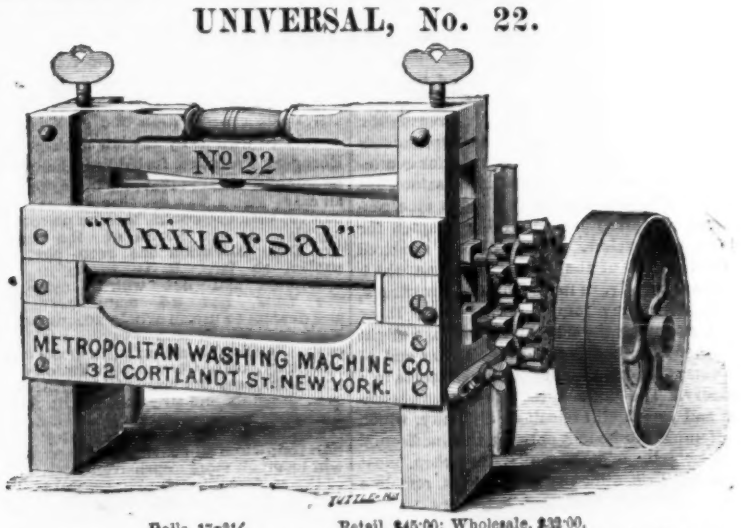
Rolls, 14x3¼ inch. Retail, $25·00; Wholesale, each, $21·00.
A very strong, durable Wringer, for heavy work, by hand or power.

UNIVERSAL, No. 18.

For Hand or Power.

Rolls, 17x3¼. Retail, $35·00; Wholesale, each, $25·00.
For Power, Laundry or Factory Use

UNIVERSAL, No. 22.



Rolls, 17x3¼. Retail, $45·00; Wholesale, $32·00.
Several thousand of this size are in successful use on Power Washing Machines, in Factories, Sugar Houses, Laundries, etc. The best Power Wringer ever made.

Railway Car Reform in Great Britain.

We take the following significant article from a Glasgow newspaper:

There are two things above others which have recently engaged and still occupy the attention of boards of directors—increased safety to their trains, and increased comfort to the passengers. One rests largely with the brake, the other with the form of carriage. The heavy losses the companies have had to suffer through compensation for accidents, together with the pressure of public opinion, have urged the former reform; and the general voice also, but more especially the rivalry of competing lines, has worked a vast improvement in the latter. Into the comparative value of Steel's and the Westinghouse brakes we shall not enter; their merits have lately been the subject of much discussion, and their capability has been practically tested by frequent experiments. Skill is necessary to the formation of an opinion regarding them. On the other hand, we are all alike able, from our point of view, to judge of the comfort of a vehicle; we can all form an estimate of the advantages or disadvantages of particular modes of internal arrangement in carriages, of certain kinds of fittings, and of the conveniences that may be provided. Much has been done in the way of reform. The ordinary first, second and third-class carriages are no longer the agglomeration of close boxes and stuffy compartments they once were; the space for occupants has been greatly enlarged, and quite a multitude of minor contrivances have been adopted for the comfort of the passengers. The palace car, an invention from beyond the Atlantic, has been adopted by the Midland Railway Company, but other two lines, the west and east coast routes, have put on cars specially constructed for the journey, and suited to the peculiarities of the traffic. For the journey from Glasgow to London on the Caledonian there is first a sleeping carriage pure and simple, which has been run for a year or two past; second, there is a novel and very ingeniously contrived composite carriage, specially adapted for the limited mail; and, third, there is the handsome and commodious day saloon carriage, which was only put on the road at the end of last summer. Externally, none of them differs in appearance from the ordinary run of carriages, except that the sleeping car has perhaps a little more ornamentation on its panels, and is better protected from the inquisitive gaze of loungers about platforms by blinds and screens. Access is gained by one door on either side, and a passage, which runs lengthways of the carriage, gives admission to the several compartments, which are separated by doors. As originally designed, each compartment was fitted up for four sleepers, couches running along the sides of the vehicle about the hight of an ordinary seat from the floor, while similar berths could be lowered from the roof by undoing a simple fastening. The appearance of the compartment exactly resembles that of a four-berthed state-room on board a passenger steamer. Experience has, however, suggested several improvements in details, and these will soon be, if they are not already, carried out. It strikes one as rather singular that some of these improvements were not thought of by the original designers of the carriage, such, for instance, as the hanging of screens in front of each berth to secure greater privacy to the occupants. Bed clothes are also to be provided, and, as it is supposed four berths are too many to have in one compartment, it has been resolved to limit them in future to two. Indeed, at present, in all the compartments, save one, of each carriage the top berths are permanently fastened up, and in that exceptional case they are only used when there is greater demand than usual for accommodation. The composite carriage attached to the limited mail contains four compartments—a third, a second, a first and a sleeping compartment. The third and second are little different from the same classes in other carriages, only they are rather more spacious, and are perhaps a little better finished. Accommodation is provided in the first-class compartment for only three passengers, the seats, which are finely cushioned, occupying the whole of one side, while on the opposite side there is a small closet with a lavatory and other conveniences. The disposition of the sleeping compartments is precisely similar, and a cursory inspection of it would not reveal any other difference than this—that the space from partition to partition is greater, and the seats broader from the front to the back. There is no appearance of any special arrangement for sleeping till the attendant undoes a fastening at the top of a cushion at the back of the seat, when the whole framework of the seat, moving on hinges, comes down, and the back coming into a horizontal position, discloses on the reverse side, which is uppermost, a comfortable spring bed. This carriage has only been running since the end of last summer. At the same time there were put on the line day saloon carriages for the through journey. Similar in size and outward appearance to the others, they are divided into two compartments or saloons, one of which is reserved for gentlemen and the other for ladies. Each saloon has comfortable accomodation for about nine passengers, and they are admirably adapted for parties of travelers. The seats are arranged round the sides of the saloon, the one which runs transversely, as in the ordinary carriages, being divided by jointed arms, while those which run along the sides of the carriage might be better described as couches. At the end of the compartment a small door gives access to a lavatory. The communication between passenger and guard still remains a difficulty, which is attempted to be met only by the ineffectual cord, which nobody can reach when most needed. This difficulty will always remain a stumbling-block until end entrances to carriages become universal. The advantages of end entrances are so manifold that nothing but the fact that the wrong pattern has become the rule obstructs their introduction. At present, half the doors on our railways are continually useless, and when one considers the amount of capital lying idle in the construction of one-half the doors in the rolling stock of the country, with all the complicated workmanship involved in a door—its hinges, its windows, its locks, its handles and straps—and, above all, the manual labor expended in locking it when it is on the off-side or the line, it is difficult to understand why double side doors should be continued. The only reason we have heard for a multitude of side doors is the case with which carriages are emptied by them. But in the new saloons we have noticed above this reason is departed from, for we have only one door for the whole contents of the saloon. The absence of side doors, and the use of end entrances instead, is economical, adds strength to the carriage, and provides complete communication throughout the train. Moreover, it provides more seats. We confidently look to the adoption of end entrances as the next step in railway carriage reform.

Industrial Art.

We find the following sensible recommendations in the last annual address of Governor Hartranft, of Pennsylvania: "I have heretofore earnestly pointed out the growing necessity for industrial art education. First, through the public schools, by the introduction of mechanical and freehand drawing; secondly, by night schools for adults, and thirdly, by special schools of industrial design for all classes. Museums, art galleries and other public collections are also important forces in industrial education. Such institutions in England, France, Germany and other European countries are regarded as an essential element in national progress, and are mostly under the patronage of the government. Intelligence is becoming more and more a most important element in every department of industry. In this respect our educational system is wholly deficient. It turns out lawyers, doctors, preachers, and professional men in superabundance, while there is a startling dearth of intelligent farmers, manufacturers, miners, and mechanics. A few of the states have started forward in the cause of industrial education, by introducing drawing into their public schools, and providing museums and schools of design. The large and varied industries of Pennsylvania demand a similar liberality. The Centennial year has brought us the opportunity, and placed the materials for beginning at our disposal. The Geological Survey of the State has collected a mass of specimens, which is now hid away in boxes and wholly useless instead of being a source of instruction to the people. The Pennsylvania Museum and School of Industrial Art, modeled after the celebrated South Kensington Museum, of London, has secured Memorial Hall in which to form an art library; special collections, illustrative of industrial processes, and a thorough system of instruction in the arts of design as applied to manufactures, accompanied by general and technical lectures. In this, they are about to place the nucleus of a collection gathered in the rich field of the Centennial Exposition, intended to promote the improvement of American industrial art. I trust these efforts will not escape your notice. Some means ought to be devised to make available the rich collection of the Geological Survey. And you will no doubt seriously consider whether in the case of the Museum and Industrial School the State ought not to extend a hand to place upon a firm foundation a work of so much public utility.

Dillwyn Smith's Automatic Stoker.—The automatic stoker of Mr. Dillwyn Smith, which is described at length in our issue of October 26, 1876, and in a still more recent date, has lately been subjected to some interesting tests at Messrs. Collins & Co.'s Works in Philadelphia. The fuel used was anthracite and bituminous coal, so small in both cases as to be of little value for most purposes. The price was, we believe, 20 per cent. below that of the steam coal commonly applied under the same boiler. In addition to this economy of material there was a gain of some 10 per cent. in the efficiency of the boiler using the coal. In the matter of clinkers, ash, &c., a considerable gain was effected by using the two kinds of fuel mixed, the result being better than when either kind was used alone. We judge from the reports that have come to us that Mr. Smith's claims for the stoker have been considerably exceeded in practice. Mr. Smith has employed the best talent in perfecting the mechanical details of his invention, and it merits the favorable consideration of steam users.

Tin Foil.—It may not be generally known that tin foil, as now so widely used in the trade, is not a foil made of tin alone, but composed mainly of lead with but a slight alloy of tin. The manifold appliance of tin foil to articles of consumption and medicine is not regulated with us by any law such as exists in European countries, forbidding the use of lead or composition, or otherwise impure tin foil in all cases where it may, through oxidation or contact with the goods, become poisonous and injurious to the health of the consumers. Too little attention has been paid to this subject so far. It is to be hoped that ignorance, and not willful oversight of the facts, has led many manufacturers and dealers to use an article accompanied with such risks for the sake of saving a trifle in the cost. Beside this saving is, in most instances, imaginary, as the German pure tin foil combines such a fineness and large yield, with relatively great softness and strength, that it will practically answer most purposes, and not cost more than an equal surface of the lightest composition foil, while all heavier grades of the latter will be much more expensive to use. The yield of the regular German pure tin foil is 72 square feet or 10,368 square inches per pound; a heavier grade yields 66 square feet. The sheets are large sized, and waste in cutting is consequently small.

Special Notices.

THE IRON AGE BOOK DEPARTMENT.

DAVID WILLIAMS,

10 Warren St., New York.

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C. KIRCHHOFF,
Metal Reporter of "The Iron Age,"
Box 2806, P. O., New York.

Trade Report.

Office of THE IRON AGE,
WEDNESDAY EVENING, Feb. 14, 1877.

The financial markets have been disturbed during the week by the failure of the effort to bolster up the credit of New Jersey Central, and the final collapse of the Lehigh and Wilkesbarre Coal and Navigation Company. The interests of these corporations have been closely allied, and both are involved in the ruin which has overtaken the coal mining and carrying interests of the country. With regard to the N. J. Central, it may be said briefly that Mr. Knight, the president, informed the stockholders that unless they could advance $3,000,000, the company must accept the inevitable alternative of bankruptcy. He proposed to secure the $5,000,000 he asked for by depositing in a a Philadelphia trust company $5,000,000 Lehigh and Wilkesbarre bonds. These at the time of the proposal were selling at 56 in the market, or would have been security to the amount of $2,800,000. The proposal was not accepted, and the Lehigh and Wilkesbarre was put in charge of three receivers to represent the creditors. When this became known, and further that the Jersey Central must follow in the same course, there was a panic in the securities of the company, Jersey Central stock falling to 18¾, the Lehigh and Wilkesbarre bonds to 36, the Jersey Central Convertible bonds to 59, and the Consolidated Firsts to 65. There was also a large decline in other stocks, the largest having been in Delaware and Hudson Canal.

Another event of importance was the Treasury call for $10,000,000 more 5-20s, with notice that interest thereon would cease May 12th. The bonds called all come within what is known as old 65s, of which $70,000,000 are still outstanding. The bond market has been firm, but the decline in gold has brought down quotations a trifle.

The local money market has been abundantly supplied, with rates 3 @ 4 per cent. to borrowers on call. The discount rate on prime mercantile paper is 3½ @ 5 per cent.

The course of the gold market is shown in the following comparison of the daily fluctuations:

	Highest.	Lowest.
Thursday	105¾	105⅝
Friday	105⅞	105¾
Saturday	106	105⅞
Monday	105¾	105⅝
Tuesday	105⅝	105⅝
Wednesday	105⅝	105⅝

The stock market has been alternately weak and steady, but in the main weak. The principal dealings have been in N. J. Central, Western Union, Delaware, Lackawanna and Western, Lake Shore and Delaware and Hudson Canal Co.

The foreign trade movements for the week are shown in the following tables:

IMPORTS.

For the week ended Feb. 10:

	1875.	1876.	1877.
Total for week	$6,601,929	$5,210,518	$4,570,886
Prev. reported	31,764,632	34,457,274	29,578,279
Since Jan. 1	$38,366,560	$39,667,792	$34,149,165

Among the imports of general merchandise were articles valued as follows:

	Quant.	Value.
Anvils	25	$250
Brass goods	7	678
Bismuth	4	1,540
Bronzes	7	1,464
Chains and Anchors	48	1,886
Copper		234
Cutlery	61	18,348
Guns	120	9,444
Hardware	16	2,718
Iron, pig, tons	100	1,653
Iron, other, tons	86	6,507
Metal goods	73	8,051
Nails	5	1,448
Needles	5	3,974
Old metal		2,673
Per. caps	10	1,526
Saddlery	6	1,542
Steel	328	7,936
Spelter	110,000	3,366
Tin, boxes	3,366	18,146
Tin, 633 slabs	66,500	10,867
Wire	24	3,780
Zinc	1,088	101

EXPORTS EXCLUSIVE OF SPECIE.

For the week ended Feb. 13:

	1875.	1876.	1877.
For the week	$3,952,584	$3,440,295	$4,977,839
Previously reported	26,806,051	29,558,312	35,871,508
Since Jan. 1	$40,758,635	$32,998,607	$40,849,347

EXPORTS OF SPECIE.

For the week ended Feb. 10:

Total for the week	$688,638
Previously reported	1,199,977
Total since Jan. 1, 1877	$1,888,615
Same time in 1876	3,308,040
Same time in 1875	11,603,332
Same time in 1874	4,304,957
Same time in 1873	8,972,984
Same time in 1872	1,620,313

Government bonds at the close were steady. We quote:

	Bid.	Asked.
U. S. Currency 6s	123½	123¾
U. S. 6s 1881, reg	112¾	112¾
U. S. 6s, 1881, con	113¾	113¾
U. S. 6's, 1865, reg	108¾	108¾
U. S. 6's, 1865, con	108¾	108¾
U. S. 6's, 1865, new reg	109¾	109¾
U. S. 6's, 1865, con	109¾	109¾
U. S. 6's, 1867, reg	112¾	112¾
U. S. 6's, 1867, con	112¾	112¾
U. S. 6's, 1868, reg	115¾	116
U. S. 6's, 1868, con	115¾	116
U. S. 10-40 reg	110¾	110¾
U. S. 10-40 con	114¾	115
U. S. 5s, 1881, reg	110¾	110¾
U. S. 5s, 1881, con	110¾	110¾
U. S. 4½s, 1891, reg	107¾	107¾

The following were the closing quotations of active shares:

	Bid.	Asked.
Atlantic and Pacific Telegraph	17¾	17¾
Chicago & Northwestern	32¾	32¾
" " Pref	51	51¾
Chicago, Rock Island and Pacific	99¾	99¾
Chic., Bur. & Quincy	113¾	114¾
Col., Chic. & Ind. Cent	2¾	3¾
Clev., Col., Cin. and Indpls	27	28
Cleveland and Pittsburgh	88¾	89¼
Chicago & Alton	100¾	101¾
" " Preferred	110	—
Canton	25	31
Del., Lack. and Western	67¾	67¾
Delaware & Hudson Canal	50	50¾
Adams Express	103¾	104
American Express	58¾	58¾
United States Express	50¾	51
Wells, Fargo & Co. Express	83	84
Erie	8¾	8¾
Harlem	138¾	139¾
Hannibal & St. Joseph	11¾	12
" " Pref	24	—
Illinois Central	53¾	53¾
Lake Shore	51¾	51¾
Michigan Central	45¾	45¾
Morris & Essex	85	87
Milwaukee & St. Paul	18¾	18¾
" " Pref	48¾	48¾
Mariposa	4¾	5¾
" Pref	4¾	5¾
New York Central	98¾	98¾
New Jersey Central	14¾	14¾
Ohio & Mississippi	6	6¼
" " Pref	9	11
Pacific Mail	25	25¾
Panama	122	124
Pittsburgh and Fort Wayne	101¾	101¾
Quicksilver	14¾	16
" Pref	21	24
St. L., Kan. City Northern	4¾	5¾
" " Pref	24	26
Tol., Wabash & Western	7	8
Union Pacific	65	66¾
Western Union Telegraph	70¾	70¾

GENERAL HARDWARE.

Trade continues to improve, and this market may be reported fairly active for both Domestic and Foreign Hardware.

The auction sale of Cutlery by the Association of Table Cutlery Manufacturers of the United States, notice of which has been given in these columns, commenced yesterday and attracted a large attendance of buyers from almost every section of the country. The bidding has been spirited, and the result of the sale is generally conceded to be entirely satisfactory to the makers. Many instances are reported where goods have brought better figures than were obtained for the same patterns sold as job lots a few months ago. Among the buyers present, dealers in Queensware were largely represented, and a considerable portion of the Cutlery sold was for their account.

The demand for Nails is slightly improved, and the price continues at the combination rate established by the Association of Nail Manufacturers of the Atlantic States, viz., $3 per keg for 10d. to 60d., with an allowance of 10 cents per keg on orders for 100 kegs and over. It is rumored that makers outside of the combination have offered to shade the above mentioned figures.

We are informed that the Perin & Gaff Mfg. Co., of Cincinnati, Ohio, have arranged with the patentee of the Lull & Porter Blind and Shutter Hinges for the exclusive right to manufacture these goods in the United States, and they will defend the patents covering the goods against all infringers.

A fire occurred in the large establishment of John C. Jewett & Sons, Buffalo, N. Y., on the night of the 6th instant. By their card, which we print below, it will be seen that their business will suffer no interruption in consequence:

BUFFALO, Feb. 7th, 1877.

Last night the Ellicott street portion of our works was destroyed by fire. We were fortunate in saving the Washington street portion intact. This part contains manufactured stock sufficient to fill all orders until we rebuild, which we commence to do at once. Our business will suffer no interruption, and any orders you may favor us with will have prompt attention.

Yours, respectfully,
JOHN C. JEWETT & SONS.

Harrison Bros. & Howson, of Sheffield, England, and No. 26 Cliff street, New York, have issued the following circular, under date of 9th inst.:

NEW YORK, Feb. 9, 1877.

In consequence of the death of Mr. Corsan, we desire to inform you that we have appointed Mr. W. C. Burkinshaw our sole agent in the United States.

We beg to assure you that every effort shall be made to execute orders in the best possible manner, both as regards prices, qualities and time.

Thanking you for past favors, and relying upon your continued confidence and support,

Yours, very truly,
HARRISON BROS. & HOWSON.

They have also issued a circular inviting the attention of the trade to their assortment of Ivory Table and Dessert Knives, Stag Carvers, Butchers' Knives, Table and Pocket Cutlery, Scissors, Razors, &c. Messrs. Harrison Bros. & Howson have lately added to their assortment a new Ivoride Knife, which they claim is not surpassed for quality, durability of handle and general appearance by any similar goods in the market. They have in stock a beautiful line of Pearl Handled Knives and kindred goods, which are worthy the attention of buyers.

Alfred Field & Co., No. 93 Chambers street, have issued a circular under date of 15th inst., from which we extract the following:

Our discounts on Flat-Head Iron and Brass Wood Screws are as follows:

	Iron.	Brass.
On orders amounting to less than $100	60%	55 %
On orders amounting to $100 and over	60&5 %	55&5 %
On orders amounting to $250 and upward	60&7½ %	55&7½ %

We have in stock all sizes.

We beg to call the attention of the trade to a full line of Greave's Sheep Shears, same numbers and patterns as Wilkinson's, quite as good in quality, and very much less in price.

The Pittsfield Tack Co. have established a warehouse in this city at No. 100 Chambers street, where they will carry in stock a full line of goods of their manufacture. Orders will be filled either from stock or factory, as may be desired. The business will be in charge of Fernald & Sise.

J. Clark Wilson & Co. have been appointed agents for Clark & Co., Buffalo, N. Y., manufacturers of Blind, Shutter and Gate Hinges and kindred goods. They will deliver these goods to the wholesale trade in this city, rendering invoices for same in the name of the manufacturers. They have also been appointed agents for Wickwire Bros., Cortland, N. Y., manufacturers of Wire Cloth, Sieves, &c. We refer our readers for further particulars regarding this line of goods to their advertisement on page 18.

The Metropolitan Washing Machine Co., No. 32 Cortlandt street, show in their advertisement on page 17, illustrations of the various styles of Clothes Wringers manufactured by them. By those familiar with this line of goods it will be observed that a small family size Universal Wringer, numbered 2½, has been added to their assortment since the publication of their last price list. This Wringer is offered to the trade at $63 per dozen. It has Rowell's Cog Wheels on both sides, rolls 10x1¾ inches, and has the same frame as the No. 2 Universal Wringer. They also present illustrations of Doty's Improved Clothes Washer, Union Washing Machines, Eagle Washer and American Mangles. The prices for all of these goods are also given.

The Greenfield Tool Co., Greenfield, Mass., have issued the following discount sheet to apply to their revised price list of 1872:

GREENFIELD TOOL COMPANY.

Trade Discount Sheet for 1877.

From Revised List of 1872—The Lowest in Use.

Page in Catalogue.	Discount, per cent.
3 to 4, B'ch Planes, "White River" 3d Grade	50&10
3 to 4, Bench Planes, "New York" 2d Grade	50
3 to 15, Bench Planes, "G. T. Co." 1st Grade	30&10
3 to 7, Bench Planes, "G. T. Co." with Eng. Irons	30
70, Bench Planes, "G. T. Co." without Irons	30
8 to 15, Bench Planes, "G. T. Co." Polished, all kinds	30
15 to 65, Molding Planes and Plows, all kinds, 1st Grade	30&10
69, Plane and Saw Handles	30
66 to 67, Gauges	40
74, Plane Irons, "Diamond" Stamp	15
74, Plane Irons, "Mason Bros."	30
74, Plow Bits, Molding and Rabbit Irons	10
74, Match Bits, Fillister and Dado Irons	net
70, Plates, Cuts, Stops, &c	15
Patent Adjustable Gauge for Plane	each $1 net
Patent Concave Forged Ox-Shoes	per lb. 12c. net
Patent Bread Cutters	30

We shall keep no stock hereafter of Handles from Inv. No. 830 to 878, and Rules, &c., from page 76 to 83 of Catalogue.

We now manufacture Solid Steel Table Knives and Forks, Fruit Knives and Nut Picks, in great variety; all silver plated. Also, Solid Ivory, Rubber and Bone Handled Table Cutlery, all of which are warranted equal to any similar goods made.

We are not connected with any combination, and it will be to the advantage of dealers to send for our quotations before placing their orders.

Prices for Cutlery given to dealers on application.

Terms—Net cash, subject to sight draft 30 days from date of invoice.

Thomas W. Sparks, No. 121 Walnut street, Philadelphia, manufacturer of Standard Drop and Buck Shot, Bar Lead, &c., is prepared to fill orders promptly for his specialties at lowest market rates. His advertisement will be found on page 24.

D. W. Hazleton & Co., No. 724 Girard avenue, Philadelphia, have issued an illustrated catalogue, under date of January, 1877, showing the large assortment of Curry Combs manufactured by them. In their advertisement on the 24th page they illustrate their No. 1300 Curry Comb, for which is claimed the special advantages of unusual strength and durability. The shanks are of wrought iron running through the handle and riveted. The knocker is a bar of iron extending across the side of the Comb, and is said to be a much better protection than the one ordinarily used. Another pattern, the "Eureka," is claimed to be one of the strongest and most durable Combs in the market. The handle and backplate are of wrought iron and all in one piece. In addition to Curry Combs, Hazleton & Co. manufacture "Hazleton's" Metallic Wash Boiler and Kettle Bottoms, Wash Boiler Covers, Galvanized Iron Square and Ornamental Conductor Pips, Ribbed Tubing for cemetery inclosures, Coal Hods, Stove Shovels, &c.

F. F. Adams & Co., Erie, Pa., have issued, under date of 1st instant, a price list and discounts for the goods of their manufacture, which will be found below. Early next month they will issue an illustrated catalogue, which will be forwarded on application.

F. F. ADAMS & CO.'S PRICE LIST.

Clothes Wringers.

	Per doz.
Keystone No. 2, 10 in. Roll, with Cog Wheels and Purchase Gear	$71·00
Buckeye No. 2, 10 in. Roll, with Cog Wheels and Purchase Gear	68·00
Buckeye No. 2, 10 in. Roll, without Cog Wheels and Purchase Gear	54·00
Walker's Lever, with Folding Bench, No. 2, 10 in. Roll, without Cog Wheels and Purchase Gear	60·00

Discount on 2 dozen lots, $2 per dozen.

Ladders.

Lovell's Lock-Hinge Step Ladder.

3 foot	$2·50	7 foot	$4·50
4 "	3·00	8 "	5·00
5 "	3·50	10 "	6·00
6 "	4·00	12 "	8·00

Discount, 60&10 per cent.

Defiance Step Ladder, same list—60 and 10 per cent. off.

Lovell's Extension Ladder.

10 foot section, extends to 17 feet	$6·00		
12 " " 21 "	7·20		
14 " " 25 "	8·40		
16 " " 29 "	9·60		
18 " " 33 "	12·90		
20 " " 37 "	14·00		

Discount, 33⅓ and 5 per cent.

Common Ladders, 25 cents per foot—15 per cent. off.

Adjustable Hat Rack—Walnut.

	Per doz.
7 Pins, Porcelain Tips, oil finish	$6·00
10 " "	8·00
13 " "	10·00
16 " "	12·00

Discount, 50 and 10 per cent.

Clothes Rack, Bronzed Hooks.
(Walnut.)

	Per doz.
4 Hooks, with Porcelain Nails, and oil finish	$4·00
5 " " " "	5·00
6 " " " "	6·00
7 " " " "	7·00
8 " " " "	8·00

Discount, 50 and 10 per cent.

Clothes Bars.

Reversible Clothes Bar.—Patented. Made from all Ash Timber, with Improved Patent Hinge.

Price per dozen.

No.	Hight. Ft.	in.	With Castors.	Without Castors.
1	3	..	.....	$14·00
2	3	10	$18·00	16·00
3	4	10	20·00	18·00
4	5	10	22·00	20·00

Discount, 20 per cent.

Excelsior Clothes Bar, $12 per dozen—10 per cent. off.

Challenge Bed Bottom, 50 cents per slat—20 per cent. off.

Walnut Towel Roller, Bronzed Hooks, $4 per dozen—30 per cent. off.

Common Towel Roll, $2·50 per dozen—10 per cent. off.

Domestic Mop, $2·50 per dozen—10 per cent. off.

Mirror Rat Trap, $6 per dozen—10 per cent. off.

Finished Hardwood Wainscotting. Prices given on application.

Terms—Time, 60 days from date of invoice. All bills subject to sight draft after 60 days. Interest will be charged after 60 days unless, by contract, longer time is given. Two per cent. discount may be deducted from all bills if paid within 15 days from date of invoice. In no case will this discount be allowed unless the remittance is received by us within 15 days.

Symonds & Co., No. 120 Exchange place, Philadelphia, invite the attention of proprietors of mills, factories, iron works and machinists to their "Eureka" Steam and Hydraulic Packing, which they claim to be the best article of the kind yet invented. It has a rubber center, rectangular in form, covered with a series of braids of linen, between which is placed a lubricative compound, which contains nothing that can cut, flute or gum the rods, no matter how long run. In their advertisement on the 9th page they present an illustration of this Packing with the ends cut so as to show the rectangular form of the rubber center.

Reading Butt Works, Reading, Pa. (Rick Brothers, proprietors), E. E. Yates & Co., agents, 103 Chambers street, have issued their new catalogue illustrating the goods of their manufacture, such as Drilled Acorn Butts, both plain and loose, Bronzed Brackets for wall and shelf, Pulleys, Coat Hooks, Boot Jacks, Whiffle Tree Hooks, Apple Parers, Barn Door Hangers, &c. Their discount sheet is not yet issued, but will accompany a copy of their catalogue, which will be mailed on application. Their advertisement will be found on page 36.

BRITISH IRON MARKET.

(*Specially reported by cable for The Iron Age.*)

WEDNESDAY, Feb. 14, 1877.

Scotch Pig.—There is but a fair amount of business doing, and prices are not so strong. We quote makers' Irons as follows:

Coltness No. 1	66/
Glengarnock No. 1	61/6
Eglinton No. 1	57/6

Manufactured Iron and **Rails** are as last reported.

IRON.

American Pig.—The condition of the market is practically unchanged since we last reported it. Some of the purchases then pending have been concluded, and sales of No. 2 and Forge Iron aggregating 1500 tons on private terms, are reported. We quote at unchanged figures, Foundry No. 1, $20 @ $21; Foundry No. 2, $19 @ $20; Gray Forge, $18 @ $19.

Scotch Pig.—The market continues in the depressed condition previously noted. During the week sales of 100 tons Coltness and 100 tons Glengarnock have been made, both on private terms. We quote: Glengarnock, $27 @ $27·50; Eglinton, $25·50; Carnbroe, $26 @ $26·50; Coltness, $27·50 @ $28.

Rails.—We do not hear of any transactions either in Steel or Iron Rails, and quote as before, $48 @ $50, at mill, for Steel, and $35·50 @ $37 for Iron.

Old Rails.—We quote $19·50 @ $20.

Scrap.—Sales are reported of 210 tons Railroad Scrap on private terms, and 200 tons old Car Wheels at $19. We quote Wrought Scrap, from yard, $26 @ $27.

METALS.

Copper.—Arrivals by rail from Lake Superior have been liberal, and aside therefrom some recent speculative purchases are on the market to be resold, all of which has contributed to weaken prices. Sales have amounted to but 200,000 to 300,000 pounds Lake Superior, from 20c. down to 19½c., the market closing at 19¾c. @ 19¾c. Baltimore we quote 19¾c., nominally. Despite the fine weather business in the metal trade, and especially in Copper, revives but slowly, and from this a certain disappointment is traceable which we observe this week, in contradistinction from the more hopeful feeling noticeable last week. Accounts by cable from London are highly unfavorable, Best Selected having dropped to £79, and Chili Bars to £71. The latter figure, it should be remarked, is but £1 above the lowest point last year. Altogether, the European advices respecting metals in general, and Copper in particular, that have come to hand thus far are anything but encouraging, but the starting point as regards prices was so considerably lower this year than in January, 1876, that it has not required much of a decline to bring us back to about the lowest point in 1876, which in its turn was such a ruinous one that it had the effect of at first checking production. Subsequently speculation caused a rebound which has but wrought mischief. Whatever the ensuing campaign may have in store for people in Europe, cannot be very disastrous, since it will be inaugurated on the safe basis of low prices, which is greatly preferable to entering upon a new season with rates inflated by unhealthy speculation. At the same time it cannot be denied that the great drop in Copper at London last week has not failed to increase the apathy among us. Mail accounts to hand from England are to the 27th ult., when Best Selected still stood £83. There is a moderate demand for manufactures, which we quote 31c. for Sheathing, and 32c. for Bolts and Braziers; New Yellow Metal Sheathing, 18½c. @ 19c.; and Yellow Metal Bolts, 26c. @ 28c., net cash.

Tin.—Arrivals here have been quite free since our last—some 4000 slabs—yet holders have shown a good deal of firmness in view of the more encouraging cable advices from London, where Straits has recovered to £74 @ £74. 10/, though with but a moderate demand. Nothing new has been telegraphed from Singapore and Penang, but we have the result of the Billiton Tin sale of 10,000 piculs, which took place at Batavia on the 12th instant, averaging 46·75 guilders per picul, a decline of 2 guilders since the December sale. We quote large lines, in gold, as follows: Straits, 17c. @ 17¼c.; English Refined, 16¾c. @ 17c.; ditto Common, 16½c. @ 16⅝c., and Banca, 19¼c. @ 20c., all gold. *Tin Plates.*—The market here has quieted down again; in England there is no change reported by cable. We quote, gold, per box, large lines, ordinary brands, as follows: Charcoal Bright, $6·75; ditto, Ternes, $6; Coke Tin, $6, and ditto Ternes, $5·50 @ $5·62½. Mail accounts from Liverpool reach the 25th ultimo, and read as follows: "A little more buying has been done this week, and this, though not sufficient to advance prices, has prevented a further relapse. It is rumored that in consequence of the unremunerative character of present rates makers have decided to close one week in three, this arrangement to commence next month. If this is carried into effect, its tendency will of course be to stiffen quotations. In the meantime we report the market steady."

Lead.—The price of 6·30c., currency, for Common Domestic is firmly insisted upon, and some Richmond, for which a lower figure was offered, has gone into store. Select at St. Louis is quoted 6¼c., currency, equal to 6·75c., currency, here. A pretty confident feeling prevails with respect to the near future of this metal, although devoid of all sanguinity. Foreign we quote 6¾c., gold, nominally. The latest English mail report, 27th ult., reads to the following effect: "Lead, though continuing quiet, is held for last week's prices, which can, however, when actual business is done, be slightly shaded. Figures are: Spanish Pig, £21 @ £21. 10/; Plumbers' Pig, £21. 2·6, less 2½ per cent.; English Pig, £21. 15/ @ £22. 15/; Sheet, £23. 5/; Piping, £24; do., small, £24. 10/., less 2½ and 1 per cent. Manufactures of Lead are in but moderate demand: Bar at 7¾c.; Pipe at 9c., and Sheet at 9¼c., less the trade discount.

Spelter and Zinc.—Domestic Spelter remains quite firm, and we quote best brands 6¾c. @ 7c., currency, and inferior ones 6½c., currency. Business done moderate. Foreign attracts, as heretofore, little attention, and we have no sales to report. The stock is reduced to a mere trifle. We quote the same 6¾c., gold. *Sheet Zinc* is dull at 8½c., gold, for Mosselmann, and 8c., currency, for Domestic.

Nickel.—The following cablegram came to hand from Germany to-day: "Nickel improving; hasten orders." We presume the German or some other Continental governments are again in the market to purchase for coinage purposes, which has always a decided effect upon the current value of the metal. For to-day we leave it unaltered at $1·90, gold, per pound, but may have to quote higher in our next. The Pottsville *Miner's Journal* contains some information about a Nickel mine in Clinton county, Pa., some 14 miles from that city, claimed to be rich in ores, assaying from 7 to 17 per cent. pure metal, whereas the Gap Nickel mines, in Lancaster county, Pa., assay from 3 per cent. downward. The report winds up as follows: "The rock is quite dark, almost black, in color, and was at first thought to be slate. Seams of a dark ash-colored deposit, from one-fourth to an inch and a half inch in thickness occur in this dark rock, and these prove to be the richest deposit, though the whole rock is rich. It is estimated that the rock is not less than 40 feet thick." Accounts about new mines have, of course, to be taken with a grain of allowance.

Antimony—Is essentially unaltered, although it might be shaded probably, considering the limited demand. We quote the same 12¾c. @ 13¼c., gold, as to brand and quantity.

COAL.

The market remains in a very quiet state, the demand being very small and prices merely nominal. There are practically no quotations, Coal being sold, to use a common phrase, at "any price offered." While this is not true to the letter, yet parties desiring Coal have no trouble in obtaining considerable concessions from circular prices. There is little hope expressed by dealers in regard to any improvement in prices, at least for the present. The almost universal opinion among dealers in Coal is that the present prices are entailing upon them decided losses, and that the first move made must be for the better to them. Coal is no doubt put upon the market by many of the companies at prices below the cost of production. There are at the present time only a few of the best located mines that can go on without actual loss, but it is said that there are some that can do so. In any event, the present prices are so low that Coal is a very good investment for the manufacturer. Those who put in stocks at the present time cannot be very far wrong in any event. The only topic of interest in the trade is the condition of the various Coal companies and Coal roads. The competition of these roads is very seriously felt, and will probably be an important factor in determining the price of Coal for some time to come.

The Pennsylvania Coal Company's circular "No. 1," dated January, and announcing that their production of Coal will be disposed of in the old time method of receiving tenders from dealers and others for the amount wanted per month, prices to be fixed on the 20th of the month preceding, has caused a good deal of discussion in the trade as to whether the company would sell any more Coal at auction. The general impression seemed to be that the company did not wish to sell any more Coal in that way. Mr. Hoyt yesterday said frankly that he did not know whether there would be more auction sales by his company. If there were the circular and the contracts would fall to the ground, as a man would be a fool to take Coal by contract if he could get it at auction for perhaps $1 per ton less. It is quite possible that another sale will take place for the month of March, as the shipping season does not begin until April. Probably the state of trade will decide the question of selling by auction. This is a method of selling which is not looked upon with much favor by the trade, although it has certain advantages for the companies who sell. Freights seem to be considerably lower, and round ports are quoted at about the same figures as before the ice blockade. We continue our quotations, although merely nominal; they will be found upon page 24.

EXPORTS

Of Hardware, Iron, Machinery, Metals, &c., from the Port of New York, for the Week ending February 13, 1877:

Cronstadt.

	Quan.	Value.
Br. cups, bls.	1176	$97,610
Cartridges, cs.	1132	34,384
Powder, cs.	3715	59,440
Brass discs, cs.	1	83

British West Indies.

Wire goods, cs	3	160
Hdw., pkgs.	110	1,387
Nails, kegs.	319	1,069
Mach'y., pkgs.	6	400

Hamburg.

Hdw., pkgs.	139	2,080
Pumps, pkgs.	2	148
Ore, bags	219	1,000
Ag. imp., pkgs	77	4,424
Wringers, cs.	3	172

Antwerp.

Machinery, cs.	7	750

Liverpool.

Met'l g'ds, cs.	8	1,687
Bells, cs.	2	225
Pumps, cs.	7	812
Mach'y, pkgs.	59	3,061
Hardware, cs.	26	1,464
Metal, cs.	4	789

London.

Hdw., pkgs.	63	2,270
Machinery, cs.	7	678
Ag. imp., pkgs	1989	58,500
Wringers, cs.	5	112

Glasgow.

Ag. imp., cs.	5	500
Mach'y, pkgs.	24	2,835
Pumps, cs.	14	550
Brass, cs.	8	550

Dublin.

Ag. imp., pkgs	162	4,520

Cardenas.

Tin, bxs.	3	$110

British Honduras.

Hdw., pkgs.	19	319
Tinware, cs.	3	213
Nails, kegs.	25	78

Havre.

Ag. imp., pkgs	320	11,262
Gr'dst'ns, pgs.	51	450

Cuba.

Ag. imp., pkgs	22	558
Hdw., pkgs.	123	3,459
Wire, bdls.	430	6,090
Iron bars.	1466	17,600
Iron, bdls.	59	360
Mach'y, pkgs.	15	1,515
Pumps, bxs.	2	289
Nails, kegs.	758	2,253

Hayti.

Hdw., pkgs.	15	389

Venezuela.

Zinc, casks.	3	104
Tinware, pkgs	8	168
Iron, pkgs.	134	142
Mach'y, pkgs.	7	569
Hdw., pkgs.	71	793

Brazil.

Cutlery, cs.	76	2,018
Hdw., pkgs.	291	4,106
Car wheels	20	130
Ag. imp., pkgs	57	718
Machinery, cs.	4	130
Pumps, pkgs.	3	150
Tinware, pkgs	10	96
Railroad bars.	2203	23,730
H'rseh's, kgs	64	388
Nails, kegs.	56	169
Irons, cs.	224	1,044

Argentine Republic.

Iron, cks.	11	155

IMPORTS

Of Hardware, Iron, Steel and Metals into the Port of New York, for the Week ending February 13, 1877:

Hardware.

Boker Hermann & Co.
Mdse. pkgs., 6
"Canfield,"
Packages, 3
Field Alfred & Co.
Cutlery, cs., 13
Casks, 3
Per. caps, cs., 2
Chains, cks., 23
Laughland & Co.
Wire, bdls., 103
Wire, cks., 1
Peters Bros.
Mdse. pkgs., 2
Schoverling & Daly,
Mdse. pkgs., 6
Tillottson L. G. & Co.
Wire, lots, 338
Wiebusch & Hilger Hdw. Co.,
Hdw. and cutlery, pkgs., 38.
Anvils, 150
Chains, cks., 1
Casks, 4
Mdse., pkgs., 31

Iron.

Abbott Fere,
Bars, 263
Baldwin, Austin & Co.
Pig, tons, 200
Henderson Bros.
Pig, tons, 200
Lang W. Bailey & Co.
Bundles, 90
Marvel W. D. & Co.
Ore, tons, 250
Phelps, Dodge & Co.
Sheet, bdls., 186
Sampson G. G.
Pig, tons, 100
Salamon A. H. & Co.
Scrap, tons, 7
Whitney A. R. & Bro.
Flues, 243

Steel.

Brown William,
Bundles, 98
Cases, 3
Walscheid C. A.
Bundles, 81
Woodford W. O.
Cases, 9
Order.
Cases, 42
Bundles, 251
Casks,

Metals.

Byrne Jos. & Co.
Tin plates, bxs., 932
Des Moines & Co.
Lead, pigs, 2400
Meyer Moritz,
Lead, bars, 3798
Naylor & Co.
Tin plates, bxs., 116
Phelps, Dodge & Co.
Tin, bxs., 5570
Taggers, bxs., 250
Tin, slabs, 250
Scheider Jos. & Co.
Tin plates, bxs., 116
The Tudor Co.
Tin, slabs, 609
Order.
Tin plates, bxs., 4662
Lead, pigs, 3053
Tin, ingots, 600
Tin, slabs, 2812

OLD METALS, PAPER STOCK, &c.

In the Old Metal market we have no definite change to note since last week, and quotations remain about the same as last reported. In the Rag and Paper Stock markets there is still a good demand for Jute Butts and Grass Rope; also for Gunny Bagging. Other articles present no material change. We quote the following as the current purchasing rates:

Old Metals.—Copper, 16c. per lb.; Yellow Metal, 10c.; Brass, 9c.; Composition, heavy, 12c. @ 13c.; Lead, solid, 4¼c.; Tea Lead, 4c.; Zinc, 4c.; Pewter, No. 1, 18c.; do., No. 2, 8c.; Spelter, 5¼c., Wrought Iron, $20 per ton; Light do., $12 per ton; Stove Plate, $9 per ton; Machinery, do., $12 per ton; Burnt Iron, $4 per ton.

Rags, &c.—Canvas, Linen, 4¾c. @ 5¼c.; do. Cotton, No 1, 5¾c.; No. 2, 2¼c.; White, No. 1, 5c.; No. 2, 4c.; Colored, do., 2c.; Mixed, Woolen, 2c. @ 3c.; Soft, do., 5¼c.; Gunny Bagging, 1¼c.; Jute Butts, 1¾c. @ 2c.; Kentucky Bagging, 3c.; Book Stock, 3½c.; Newspaper Stock, 2¼c.; Waste Paper and Scraps, 1½c.; Kentucky Bale Rope, 4c.; Oakum Junk, No. 1, 4½ @ 5c.; do. No. 2, 3c.; Tarred Shaking, 1c. @ 1¼c.; Grass Rope, 3c.

PHILADELPHIA.

Office of *The Iron Age*, 220 South Fourth St., PHILADELPHIA, Feb. 14, 1877.

The indications of a revival in business noted during the past few weeks still continue, and are now more clear and distinct than we have before seen. In some branches there is a degree of activity which can scarcely fail to favorably affect other departments. The Iron interests are still in a generally depressed condition, but there is a movement in various directions which gives promise of renewed life and activity, and a few weeks more of such an increase of orders as of late will do much to put business upon a satisfactory basis. Some newspaper correspondents give glowing accounts of the amount of business on hand here, which, if true, would be very pleasant. Iron shipyards, rail mills, pipe foundries, &c., are all said to be overflowing with business, but to our great regret we have to say there is scarcely a grain of truth in whole columns of such statements. The movement is of the quietest kind. Those who have been doing something all the time are doing just a little more now, and some who have been doing nothing are now doing a very little, while all seem to expect an increase of business as the season advances. This is saying about as much as the facts of the case warrant, and neighboring cities need not at present be jealous of what is doing in Philadelphia. The weather for the past two weeks has been unusually pleasant, and the breaking of the ice blockade has done much toward imparting life to various branches of trade.

Pig Iron.—The market is still in a somewhat unsettled condition, and although there is great irregularity in prices, business will no doubt gradually settle down to something like uniformity. Some people predict lower prices, and with some show of reason argue that producers are selling for forward delivery in anticipation of such an event. Others look upon the recent sales more as financial transactions than strictly Iron sales. The parties interested are naturally very reticent regarding the details, and we incline to the opinion last stated, rather than that values will be permanently affected by these operations. The effect for the time being is to unsettle prices, buyers contending for a reduction and sellers resisting unless for large blocks, prompt cash and delivery. There have been some few sales at low prices to clear up lots, but in the ordinary course of business we do not see any material change from last week's figures. Consumption seems to be increasing, and with a large proportion of the stock in the hands of speculators, we fail to see any grounds for a permanent decline. There are no immediate signs of increased production, and the chances all appear to favor a firm or advancing market. Everything will depend upon consumption. Parties who control well known and favorite brands easily get their price, say, $21 for No. 1 Foundry, and one sale of 1000 tons Gray Forge is reported at near the same figure. Others, who are introducing new brands, or are forcing the market, have to accept from $1 to $2 per ton less, according to their anxiety to realize. The general market for small lots may be quoted as follows: No. 1 Foundry, $20; No. 2 Foundry, $18·50 to $19; Gray Forge, $17·50 to $18.

Blooms.—The demand is quite moderate, and prices are steady, as follows: Charcoal Scrap Blooms, $45 to $47; Charcoal Ore Blooms, $40 to $42; Charcoal Billets, of superior quality, $55 to $62; and Bars for converting into steel, made of best Champlain Iron, $68 to $70. Sheet Iron Billets, 4½ to 5x15 strictly Cold-blast Charcoal, $63 to $67·50. Slab Blooms for Boiler Plates, Cold-blast Charcoal, $57·50 to $60.

Ores.—No recent sales are reported. Prices are as as before: New Jersey Magnetics—Blue Bessemer Select (Broken), $2·75, cash, f. o. b. Hacklebarney "Hoff"; for Foundry Metal, $3·75 to $4, f. o. b. Port Oram; Magnetic Lancaster Ore, suitable for Anthracite or Bessemer purposes, $3 per ton, f. o. b. Baumgardner's Station, Pa.

Bar Iron.—The demand continues to improve, and prospects seem better than for months past. There are no large contracts on hand, except at the Penecyd Iron Works, which is full of orders for Bridge Iron, Beams, Angles, Axles, Bars, &c. The other mills are doing better than for some time past; small orders are numerous, and bids (at low figures) are being made for large lots. The disposition appears to be to run more on first-class qualities, and the manufacturers of such bear less of low priced Iron than formerly. In fact, for some cause or other, there is comparatively little competition from outside points, and if there are no more "set backs" we think trade is fairly on the way to permanent prosperity. Prices are still irregular, according to quantity and terms of payment. Buyers of large lots are in the market at 2·05c. to 2·10c., and some sales have been made on that basis for best Refined Iron, but with a firmer feeling 2·15c. to 2·25c. is the average price with some brands, such as the "Anvil," held at the latter figure.

Skelp Iron.—There is an inquiry for a 1000 ton lot, but the mills are less anxious for business, and we do not hear of anyone offering to sell unless on strictly prompt cash terms. We quote as before, 2·25c. to 2·50c.

Sheet Iron.—There is no change; business continues dull; prospects are said to be fair for a spring trade. We quote No. 24, Eastern manufacture, 4c.

Tank and Plate Iron.—There is a good demand, and nearly all the mills are fully employed, with a number of inquiries for additional lots. The demand is from various branches, such as boiler makers, car builders, shipbuilders, etc. We understand some important sales have been effected within the past week, and fair probability of lots aggregating 1000 to 1500 tons being closed within the past few days. Altogether, the outlook is very encouraging, although prices are said to be low. We quote from 2·75c. upward, as to quality.

Muck Bars.—We note an inquiry for 2000 tons for the Pacific Coast, but the prices offered are too low to induce a sale; $37 to $39 is about the figures for good quality, with about $2 less bid.

Steel Rails.—Since our last there has been a meeting of the trade, at which all the mills were represented. No definite plan of action has yet been arranged, but we understand that a "good feeling prevails," in accordance with which prices are firmer. Some sales have been made within the past few days at about $49, at mills. The week previous 3000 tons were sold at $50, delivered at Pittsburgh; 1300 tons, $53, delivered at New Orleans; $51 for 2000 tons, delivered at Baltimore, and several lots at $50, delivered at points in Connecticut. We quote the market firm at $49 to $50, at mills.

Iron Rails.—There is no special change to note; the demand is dull, and it is a rare thing to hear of an out and out sale. Rerolling, exchange of old rails for new, is a common transaction, and one sale of 600 tons of Standard brand is reported at $36, at mills. This, we believe, is the only sale effected for several weeks past. We quote on a cash basis: Ordinary Rails, $34·50 to $36, and Standard Brands, $37 to $38·50, at mills.

Spikes.—The demand is somewhat better, and prices a shade firmer but no dearer, say, Railway Spikes, $2·25 to $2·50, and Mining Spikes, 4 to 4½ by ⅛, 2¾c.; 4 to 4½ by 7-16, 3c.; 3½ to 4 by ⅜, 3¼c.

Old Rails.—There is not much demand for city delivery, but buyers would pay $20 to $21. Sales in lots amounting to a couple of thousand tons are reported at points on the line of the Pennsylvania Railway at $21·50 to $22. We quote as before, $21 to $22.

Old Car Wheels.—Sales are reported at $19 to $19·50, deliveries similar to above. City delivery may be quoted $18·50 to $19.

Tin Plates.—Prices are nominally the same. We quote, in United States currency, jobbing rates as follows: I. C., 10x14, Best Charcoal Bright, $8; I X., 10x14, $10·25; Best Charcoal Leaded, 28x20, $14·50 to $15; good Charcoal Leaded, $14 to $14·25; other good brands, $13 to $14; good Bright Tin for Cans, &c., $6·50 to $7·25; Coke Leaded, 14x20, $6 to $6·50.

Lead.—Foreign Pig is without animation, and our quotations are nominal. While the demand for Domestic is still very moderate, there is a strong feeling and prices harden. It is now difficult to buy Common below $6·30. Fifty tons Soft Missouri sold at $6·62½; to lay it down here now would cost $6·85, currency. Manufactured is steady at old prices, with a moderate demand. Pipe, 9c.; Sheet, 9½c., less 10 per cent. to the trade.

Shot.—Drop Shot, 25 lb. bags, 9¼c.; do., 5 lb. bags, 10¼c.; Buckshot, 25 lb. bags, 10¼c.; do., 5 lb. bags, 11¼c.; Conical Balls, 25 lb. bags, 10c. per lb., net; Bar Lead, 5 oz., ½ lb. and 1 lb. bars, 7¾c., less 10 per cent. to the trade.

Old Metals.—We quote: Heavy Old Copper, 16c. to 16¼c.; Light Tinned Copper, 14c.; Copper Bottoms, 13½c.; Heavy Red Brass, 13c.; Light Red Brass, 12¾c.; Heavy Yellow Brass, 11c.; Light Yellow Brass, 10c.; Heavy Clean Pipe Lead, 5c.; Junk Lead, 5c.; Tea Lead, Light Paper, 5c.; Tea Lead, Heavy Paper, 5c.; New Zinc Clippings, 4¼c. to 4½c.; Old Sheet Zinc, 4c.; Yellow Brass Turnings, 8c. to 9c.; Red Brass Turnings, 10c. to 11c.; Plumbers' Lead Joints, 6c.

PITTSBURGH.

Office of *The Iron Age*, 20 Fifth Avenue, PITTSBURGH, Feb. 13, 1877.

Pig Iron.—There is an increasing consumptive demand, and while prices remain unchanged, the market, particularly as regards standard Mill Irons, is firmer, and some holders are refusing to sell at current rates. The fact is no one expects prices to go any lower; prevailing prices scarcely cover actual cost of production, and the cost of making has been reduced as low as it possibly can be. There is an increasing demand for Foundry Irons, as most of the stove foundries have been started up, and stocks of these as well as Mill Irons are also light. Bituminous Coal and Coke—No. 1 Foundry, $24 to $25, 4 months; No. 2, ditto, $22 to $23; Gray Forge, $20·50 to $22 for Neutral to Red-short; White and Mottled, $18·50 to $20.

Manufactured Iron.—There is an increasing demand, but the market to makers continues unsatisfactory, as prices, in addition to being irregular, are unremunerative. However, a firmer feeling is being developed, and manufacturers very generally are refusing to contract for future delivery at current rates. Moreover, buyers having become pretty well convinced that prices have touched bottom, are more disposed to buy, especially for forward delivery; and another encouraging omen is that makers will gauge production by their orders, from which it is evident there will be no accumulation of stock in first hands.

Nails.—The market is more active, and the indications are that the factories will all soon be in operation. While business has been backward in opening up, the indications are considered favorable for a good healthy spring trade, and while there is a very fair stock in first hands, jobbers are almost bare. No change in prices, nor is it likely that there will be soon—$2·75, 60 days, for 200 kegs and upward, with the 2 per cent. for cash.

Horse and Mule Shoes.—The demand is improving somewhat, although it cannot be termed active, and there is still plenty of room for improvement. No change in prices. Reese, Graff & Wood and Shoenberger & Co. continue to quote at $4·50 per keg for Horse, and $5·50 for Mule, in 100 keg lots.

Wrought Tubing.—There is no change in the card or discount as yet. It is thought, however, that the rates will be changed at the next meeting of the Association.

Steel.—The Steel mills are very generally reported busy, some of them working up to their full capacity, and the outlook is regarded as being favorable for a good healthy trade all this year. In regard to prices there have been no recent changes. Best grades of Tool Steel may be fairly quoted at 12¼c. to 13c.

New Iron List.—Since writing our report of the market for Manufactured Iron, we learn that a recent meeting of Western manufacturers ordered the issuing of a new list, based on two cents for Bars, although it is said that a remonstrance was gotten up against the same. It is well known that sales have been making at 1·80c. to 1·90c. for some time past.

BALTIMORE.

Messrs. WYETH & BROTHER, Iron and Steel merchants, 46 and 48 South Charles street, report us the following prices under date of Feb. 13: The past week has been noticeable for improved inquiry and increased demand, but unaccompanied, however, by any change in values.

AMERICAN REFINED BAR IRON.

1 to 6 wide by ⅜ to 1 thick.. } 1 to 4½ wide by 1½ to 2 thick }	2·15 to 2¼c. ₩ lb
Round and square, ordinary sizes, from ⅜ to 2 inclusive	2·15 to 2¼c. "
Hoop Iron, 1½ wide and upward	3¼ to 3¾c. "
Band Iron, from 1½ to 4 in. wide	3 to 3¼c. "
Horse Shoe Iron ⅜ to 1 wide by ⅜ to ½ thick	3½ to 4c. "
Norway Nail Rods	6 to 6½c. "
Black Diamond Cast Steel, Flats, Squares and Octagon, ordinary sizes	14½ to 15c. "
Machinery Steel	8 to 9c. "
Cast Spring Steel	7½ to 8c. "
Homogeneous Steel Plate	8½ to 9c. "
Perkins' Horse Shoes, per keg of 100 lbs.	$4·62½
" Mule Shoes " "	5·62½
R. R. Spikes	2½ to 3c.

Common Horse Nails, from 14c. to 18c. per pound.

	10	9	8	7	6	
Putnam Horse Nails.	23	24	25	26	28c.	per lb.
Globe Horse Nails.	23	24	25	26	28c.	per lb

Messrs. R. C. HOFFMAN & Co., Iron and commission merchants, No. 23 South Frederick street, report the Pig Iron market as follows, under date of Feb. 12: The Iron market is without material change. The amount of sales for the past week have been fair, and with light stocks on hand prices are very firm. We quote:

Baltimore Charcoal	$29·00 @ 32·00
Virginia "	28·00 @ 32·00
Anthracite No. 1	22·00 @ 23·00
" No. 2	21·00 @ 22·00
" No. 3	19·00 @ 20·00
White and Mottled	16·00 @ 17·00

CLEVELAND.

Messrs. C. E. BINGHAM & Co., 25 West Main street, under date of Feb. 12, quote the Iron market as follows, 4 mos. time:

FOUNDRY IRON.

No. 1 Lake Superior Charcoal	$26·00—4 m.
No. 2 "	25·00—4 m.
No. 1 Anthracite	21·00—4 m.
No. 2 "	23·00—4 m.
No. 1 Bituminous	24·00—4 m.
No. 2 "	22·50—4 m.
No. 1 Cherry Valley Am. Scotch	25·50—4 m.
B—1 " "	24·50—4 m.
No. 2, " "	23·00—4 m.
No. 1 Massillon	25·00—4 m.
B—1	23·50—4 m.
No. 2	21·50—4 m.

CAR WHEEL AND MALLEABLE IRON.

No. 3 Lake Superior Charcoal	$26·50—4 m.
No. 4 " "	27·00—4 m.
Nos. 5 & 6 "	26·50—4 m.

BESSEMER IRON.

Nos. 1 and 2 Lake Superior Charcoal	$26·00—4 m.

FORGE IRON.

No. 1 Gray	$21·00—4 m.
White and Mottled	19·50—4 m.

RICHMOND.

Mr. ASA SNYDER, Iron Merchant and Furnace Agent, Richmond, Va., writes as follows under date of Feb. 12: Market quiet. No change in quotations:

Virginia cold-blast Charcoal Pig Irons	$28·00 @ 35·00
Virginia hot-blast Charcoal Pig Irons	24·00 @ 28·00
Va. hot blast Coke Pig Iron, No. 1 ex.	24·00 @ 25·00
" " " " No. 2 ex.	22·00 @ 23·00
" " " " No. 3 ex.	19·00 @ 20·00

ST. LOUIS.

Messrs. SPOONER & COLLINS, Iron commission agents, 217 North Third street, St. Louis, under date of Feb. 8, report the Iron market as follows: Prices remain about the same as last reported, though with an upward tendency. The demand is on the increase and trade is brightening up somewhat. We quote same as last.

CHARCOAL.

Missouri No. 1 Foundry	$23·00 @ 25·00	—4 mos.
" No. 2 Foundry	22·00 @ 23·00	—4 mos.
" Gray Mill	22·00 @ 23·00	—4 mos.
Hanging Rock No. 1 F'dry	25·00 @ 26·00	—4 mos.
" No. 2 F'dry	23·50 @ 24·00	—4 mos.
" Gray Mill	23·00 @ 24·00	—4 mos.
Tennessee No. 1 Foundry	23·50 @ 24·00	—4 mos.
" No. 2 Foundry	22·50 @ 23·00	—4 mos.
" Gray Mill	22·50 @ 23·00	—4 mos.

COKE.

Alice H. R. Ex. No. 1 F'dry	$26·00 @	—4 mos.
" " No. 1 F'dry	25·00 @	—4 mos.
" " B No. 1 F'dry	24·50 @	—4 mos.
" " No. 2 F'dry	23·50 @	—4 mos.
" " Forge	23·50 @	—4 mos.
Chattanooga, Tenn., No. 1 Foundry	25·00 @	—4 mos.
Chattanooga, Tenn., No. 2 Foundry	23·50 @	—4 mos.
Chattanooga, Tenn., Forge	22·50 @	—4 mos.
" White and Mottled	21·00 @	—4 mos.

STONE COAL.

Missouri No. 1 Foundry	$25·00 @ 26·00	—4 mos.
" No. 2 Foundry	23·00 @ 24·00	—4 mos.
" Gray Mill	22·00 @ 23·00	—4 mos.
" White and Mottled	21·00 @ 22·00	—4 mos.

COLD BLAST CHARCOAL—All Numbers.

Hanging Rock	$35·00 @ 46·00—4 mos.
Tennessee	30·00 @ 33·00—4 mos.
Kentucky	30·00 @ 33·00—4 mos.
Missouri	28·00 @ 30·00—4 mos.
Georgia	28·00 @ 30·00—4 mos.
Alabama	28·00 @ 30·00—4 mos.
Assorted Bar Iron	@ 2¼ rates.
No. 1 Wrought Scrap	·95 @
Heavy Cast "	·70 @
Light Cast "	·40 @

LOUISVILLE.

Messrs. GEO. H. HULL & Co., under date of Feb. 12, write us as follows: The market is firm, but without material change in prices. Several furnaces, in anticipation of an advance, have raised their limits, but we hear of no sales at the advance as yet. Should the demand continue good, other furnaces will soon follow, and we shall then have the pleasure of noting the long looked for reaction, which buyers, as well as sellers, are anxiously wishing for. The usual time, four months, allowed on the quotations below:

HOT-BLAST CHARCOAL.

No. 1 F'dry, from Hanging Rock Ores	$24·00 @ 25·00
" 2 " " " "	22·00 @ 23·00
" 1 Mill, " " "	20·00 @ 21·00
" 1 F'dry, from Alabama, Georgia and Tennessee Ores	21·00 @ 22·00
" 2 F'dry, from Alabama, Georgia and Tennessee Ores	20·00 @ 21·00
" 1 Mill, from Alabama, Georgia and Tennessee Ores	20·00 @

HOT-BLAST STONE COAL AND COKE.

No. 1 F'dry, from Hanging Rock Ores	$23·00 @ 23·00
" 2 " " " "	20·00 @ 21·00
" 1 Mill, " " "	19·00 @ 20·00
" 1 F'dry, from Alabama, Georgia and Tennessee Ores	21·00 @ 22·00
" 2 F'dry, from Alabama, Georgia and Tennessee Ores	20·00 @ 21·00
" 1 Mill, from Alabama, Georgia and Tennessee Ores	20·00 @ —
No. 1 F dry, from Missouri Ores	— @ —
" 2 " " "	— @ —
" 1 Mill, " "	23·00 @ 24·00

COLD-BLAST CHARCOAL.

Car Wheel from Hanging Rock Ores	35·00 @ 40·00
" " Tennessee Ores	26·00 @ 28·00
" " Alabama and Georgia Ores	25·00 @ 35·00
Car Wheel from Kentucky Ores	25·00 @ 40·00

BOSTON.

FEB. 10.—*Pig* is a little more active, and there is a better feeling in the trade, due to the recent heavy sales in the West and in New York. The bottom seems to have been reached at $20 at the shipping ports, and consumers seem much more disposed to purchase a little in excess of their immediate wants than has been the case for some time past. We quote: $24 to $24·50 for No. 1; $23·50 for No. 2, and $22·50 to $23·50 for Gray Forge. Scotch Pig is quiet and unchanged, with a downward tendency, based on the decline abroad. *Bar* is a little steadier than of late, quoting $47 to $48 for Refined, and $38 to $39 for Common. *Copper* maintains the advance of last week, and may be quoted at 20¼c. to 20¾c., the latter for small lots. There have been further sales for export, aggregating some 600,000 lbs., and the previous rumors are confirmed. For Manufactured we quote New Sheathing, 31c. to 32c.; Bolts and Braziers, 32c. to 32½c.; Yellow Metal Bolts, 26c. to 26½c.; do. Sheathing, 21½c. *Lead* continues rather improved in feeling. The demand for the spring trade is quite good. We quote: Pig, 6¼c. to 6½c., currency, for Domestic; Sheet, 9½c.; Pipe, 9c.; Tin Lined Pipe, 16½c.; Bar Lead, 8½c., less usual trade or 10 per cent. discount. *Antimony* is quiet but firm at 13½c. to 14c., gold, for Boston spot lots, and *Spelter* is weak and lower, closing at $6·50 on the spot for 10 ton lots. *Tin* continues dull and easy. The decline abroad continues. We quote: Straits, 17¼c. to 17⅝c; Banca, 19⅝c. to 20⅛c.; Refined English, 17½c. to 17¾c., gold. We quote *Plates*: Charcoal I. C., $7 to $7·50; Coke, $6·10 to $6·25; and Terne at $6·75 to $7·25, gold.—*Commercial Bulletin.*

CINCINNATI.

Messrs. L. R. HULL & Co., under date of Feb. 10, write us as follows: PIG IRON.—The improved demand noted in our last report has been well sustained, and while no very large sales can be reported the demand for moderate lots is much more general than formerly, and the aggregate movement is quite satisfactory, as it shows a decided improvement. It is hoped that an advance sufficient, at least, to cover the cost of production of charcoal Irons will result from the general steady revival of business, which there now appears good reason to anticipate. The charcoal men reason that there is not a Hanging Rock charcoal hot-blast furnace now in operation, that none can under any circumstances be started for some months, that the stocks of this quality of Iron are light, and that before the time when the furnaces can start we are very likely to have a decided scarcity of this particular grade. The tone of the market generally is decidedly regular and healthy, and it is hoped we are nearing a better period for the Iron interests of the country.

HOT-BLAST FOUNDRY.

Hanging Rock No. 1, Charcoal	₩ ton. $24·50 @ 25·00—4 mos.
Hanging Rock No. 2, Charcoal	22·50 @ 23·00—4 mos.
" No. 1, Coke	24·00 @ 25·00—4 mos.
" No. 2, "	22·00 @ 24·00—4 mos.
" No. 1, Stonecoal	22·00 @ 23·00—4 mos.
Virginia No. 1, Coke	23·00 @ 24·00—4 mos.
" No. 2, "	21·50 @ 22·00—4 mos.
Ala. and Tenn., No. 1, Charc'l	23·00 @ 23·50—4 mos.
" " No. 2, "	22·00 @ 22·50—4 mos.
Red Short, No. 1, Coke	25·00 @ 25·50—4 mos.
Fannie U. S. Scotch, No. 1	24·50 @ —4 mos.
Alice " No. 1	25·00 @ —4 mos.
South. Ohio Am. Scotch, No. 1	22·00 @ —4 mos.
Cherry Valley, A 1	26·50 @ —4 mos.
" " B 1	25·50 @ —4 mos.

FORGE IRONS.

Hanging Rock No. 1, Charcoal	₩ ton. $21·00 @ 21·50—4 mos.
Hanging Rock No. 1, Coke	21·00 @ —4 mos.
Virginia, No. 1	21·00 @ 21·50—4 mos.
Ala. and Tenn., No. 1, Charc'l	21·00 @ 21·50—4 mos.
Red Short, No. 1, Coke	22·00 @ 23·00—4 mos.
Cold Short, No. 1, Stonecoal	20·00 @ 20·50—4 mos.

CAR WHEEL AND MALLEABLE.

Hanging Rock	₩ ton. $45·00 @ 50·00—4 mos.
Southern and Western Brands	35·00 @ 45·00—4 mos.

CHATTANOOGA.

Mr. S. B. LOWE, under date of Feb. 12, reports as follows: The continued inquiries and demand for metals during the past week fully justifies the advance that has been made in prices, which have yet a tendency upward. There are but few stocks on hand, and some of the furnaces are declining orders beyond the contracts they already have for future delivery.

COKE.

No. 1 Foundry, extra	$21·50 @ 22·00
No. 1 Foundry	20·00 @ 21·00
No. 2 Foundry	18·00 @ 18·50
Forge Iron	16·50 @ 17·00
White and Mottled	15·50 @ 16·00

HOT-BLAST CHARCOAL.

No. 1 Foundry, extra	$21·00 @ 22·00
No. 1 Foundry	19·50 @ 20·50
No. 2 Foundry	18·00 @ 18·50
Gray Forge	17·00 @ —
White and Mottled	16·50 @ —

COLD-BLAST CHARCOAL.

Car Wheel Metal	$23·00 @ 28·00
" " extra standard	30·00 @ 35·00
Forge Metal	18·80 @ 21·00
Muck Bar	31·00 @ 35·00
Old Car Wheels	17·50 @ —
Old Rails	17·50 @ 18·50
Brown Hematite Ore, 50 to 56 per cent. per ton	$2·00 @ 2·50
Red Fossiliferous Ore, 53 to 56 per cent. per ton	1·80 @ 2·00

FOREIGN.

FRANCE.

(*Moniteur des Interets Materiels*).

PARIS, Jan. 28, 1877.—*Metals.*—Business leaves much to be wished for. The political situation is by no means a reassuring one. The weather remains unusually mild for the season, and trade with difficulty shapes its course accordingly. It is much to be hoped for that the spring opening may indemnify us for past and present disappointments. The dealings in metals have lacked animation, and in *Copper* a decided weakness is perceptible. We quote, deliverable at Havre: Chili Bars, 197·50 francs; Common ditto, 195; Ingots, 207·50; Best Selected, 209; and pure Corocoro Ore, 200. We quote old metals as follows: Best quality Old Copper, 175 to 177; second quality, from 160 to 165; Old Bronze, 150 to 152; second quality, 125 to 128; Old Yellow Metal, 125 to 140; Bronze Filings, 125 to 130; and Yellow Metal ditto, 105 to 110. Havre is altogether nominal. They quote first brands Chili Bars, 197·50; good current ditto, 195; Lota and Urmeneta, 193·75, Paris conditions. At Marseilles a lot of old Bronze Cannon has been sold on private terms. They quote: Spanish Copper, in slabs, 185; Red Tokat, 190; small Refined Ingots, 195; Sheathing, 230; Bolts, 240; and Yellow Metal Sheathing, 215. *Tin* is supported with more firmness, but we can hardly see the reason why holders should not rather quit the article as soon as possible at current rates, the shipments from Australia bring excessive. Little is transacted here and prices are weak. We quote Banca, deliverable at Havre or Paris, 202·50 francs; Billiton, 197·50; Straits, 200; Australian, 197·50; and English, delivered at Havre or Rouen, 197·50. Old chopped Tin sells at 100 francs. At Marseilles, prices are firmer, but there is little faith in any serious improvement. We quote Banca 210, and Straits and Billiton, 200. *Lead.*—At present rates this metal is supported with great firmness, owing to a good trade demand; prices are rather tending upward here; we quote French, deliverable here, '55; Spanish at Havre, 54·50; English, 54·50; and Belgian and German, here, 55. Old Sheet and Pipe Lead we quote 45 and 46; Recast, 42. At Havre, Lead has advanced 50 centimes, First Fusion Soft Spanish having risen during the week from 54·50 to 55. At Marseilles, on the contrary, the metal is weak and without anything doing. They quote First Fusion from 53 down to 52·50; Second ditto, 52; Sheet and Pipe, 59; and Shot, 57. *Spelter* is again slightly giving way, transactions being restricted to a mere trifle. We quote Silesian, deliverable at Havre, 55·50; other good brands, 55·50; and at Paris, 56; old Spelter is worth 42 to 43; no change is reported at Havre, where Silesian still commands 56·50. Marseilles is unaltered, Vielle Montagne Sheet Zinc still selling at 76; other brands at 75, and old recast Spelter at 52. All the foregoing quotations are for 100 kilos. *Iron.*—Business in our Iron districts is still remarkably quiet, sales being limited to 1200 tons, sold by the Montataire forges, free at La Villette, Paris, at 180 francs first quality Merchant Iron. In the Haute Marne there has been more doing, good quality Pig selling at 120; Montage No. 0, at 112·50; and Merchant Iron at 180. Sheet Iron is neglected. There is also but a slack demand for Ironware, which is quoted 280 francs for No. 20. Chains are worth 640 to 650; in the Meurte-et-Moselle affinage Pig is selling at 52 to 53.

BELGIUM.

(*Revue Universelle*).

BRUSSELS, Jan. 28, 1877.—*Iron.*—The situation is getting worse. Orders, already scarce for months past, are diminishing daily, and several iron works are devoid of occupation. Among others the Jupille Rolling Mills had been spoken of for some time past as likely to suspend operations. This has now come to pass; they chiefly turn out Sheet Iron, but orders were not of sufficient importance to make them go

ol producing. The Esperance forges have availed themselves of this closing up of their nearest competitors, and have thus been able to screw up prices one franc, but this is a purely local and exceptional case. Work in most of our establishments is continued chiefly for the purpose of not discharging the men, and in order to have them at hand for any sudden revival; no price now obtained is remunerative. The number of men out of employment is so considerable that daily desirable hands from the rolling mills offer their services for a mere song. We know an establishment near Lieges, employing 450 operatives, yet within the past few days 373 men out of employ applied there for work. A reduction of salaries is now becoming more and more general; thus at Charleroi they have been cut down 5 per cent. the larger ones, and between 2 and 3 per cent. the smaller ones. At Lieges employers have even gone further, and in many cases have resorted to a cutting down of 15 to 20 per cent—tacidly submitted to. The workmen of Belgium are now quite reasonable; they fully appreciate the critical period we are traversing, and console themselves with hoping for better times, and it is to be hoped that a similar state of affairs may not be indefinitely prolonged. The Belgian Company of railroad materials has received an order from South America for a railroad bridge. This order has been obtained by the Liege Syndicate, an association of manufacturers, which passed the order for execution to the said company.

GERMANY.

(Borsenhalle).

HAMBURG, Jan. 27, 1877.—*Metals.*—The situation is still far from being a satisfactory one. The evils which we are suffering are too deeply seated to be easily removed. The largely increased manufacturing facilities of Germany and neighboring industrial countries have, of late years, led to excessive production, and the equilibrium between the supply and demand can only be restored by a revival of confidence in the future. As long as the political horizon is overcast we shall look in vain for such a restoration of confidence. The consequence is that speculation is virtually extinct, and that dealers and consumers only buy from hand-to-mouth. Metals, particularly, suffer from these causes. *Copper* has, however, been a little livelier during the week, but the transactions cannot be called large. Prices are sustained. Berlin is quiet at the following quotations: English and Australian, 83 to 87 marks, the 50 kilos., and Mansfield, 89 to 89·50. At Stettin, English Tough Cake is quoted 82 to 85. We have no change to report from here, and quote as heretofore: Minnesota, 108; Quincy, 95; English Tough Cake, 87. *Tin* has been slightly looking up, and at Berlin Banca commands 82 to 85, and English Refined 80 to 80·50. We are here 85 to 87 with Banca and 83 with English. *Lead* is firm in our markets; in Berlin it commands 22·20 to 22·40 with ease. We quote here English pig 23·50 to 24; ditto sheet, 24·50 to 25. *Spelter.*—Nothing has transpired in this metal. It is difficult to determine which way prices will probably tend. If a revival does not soon manifest itself we shall probably have to be prepared for some giving way. Berlin quotes 22 to 22·50 for good quality Silesian, and Stettin 23 to 24. Here spot Spelter is worth 22·50, while futures are bringing 23. The foregoing quotations are for 50 kilos.

HOLLAND.

(Koch & Vierboom)

ROTTERDAM, Jan. 27, 1877.—*Tin.*—Prices are weak and slowly declining. Banca Tin could probably be procured at 45¼ guilders, but we doubt whether this would prove an inducement for purchasers. The dealings during the week have amounted to very little. In Billiton some business has been done at 44¼. The general demand is insignificant, everybody preferring to postpone action till the Netherland Trading Society's sale comes off on the 31st instant.

AUSTRALIA.

Mining News.

SYDNEY (New South Wales), Jan. 6, 1877.—*Tin.*—The working of Tin continues to attract a large amount of attention in Australia. Both in Tasmania and in Australia, properly so called, the amount of Tin Ore which awaits utilization would seem to be very considerable, although of course time, capital and labor are all required to insure its being turned to good and profitable account. In New SouthWales the progress of the Vegetable Creek Tin Mines has attracted considerable notice. The Great Britain Mine embraces 620 acres of land, which have been converted into a mineral conditional purchase. This valuable property is situated at the head of the Vegetable Creek, and tin mining is being carried on upon the property on a large scale. Numerous Tin mines on the east and northeast coasts of Tasmania are being worked with various success, the most remunerative being those in the hands of co-operative associations. The most prominent are the Full Moon, the All Nations, the Union and the Black Boy, but several others are yielding handsome and many fair returns. Now that a road has been made from Ringarooma port to Upper Ringarooma a large trade is springing up at that port, and during October 2486 bags of Ore were shipped there for Launceston. In October the total quantity of Ore received in Launceston from the east and northeast coast of Tasmania was 4311 bags, about 210 tons, and other shipments were daily expected. Beside this nearly 100 tons were shipped at George's Bay for Hobart Town, and were sent from thence to this city. The smelting works of the Mount Bischoff Company have not been idle; two furnaces have, indeed, been steadily employed, and the company hope before long to have four constantly at work.

NEW CALEDONIA.

(La Patrie.)

NOUMEA, Dec. 20, 1876.—*Nickel.*—The Nickel mines in this colony are in a high state of prosperity. The principal ones are situated in the eastern portion of the island, and among them the Ballard mine, at Onclaw, deserves special mention, as well as the mines of Mr. Hankard, at Kannala. The demand for ore for shipment to Europe exceeds our present capacity of production. The Bank of Noumea advances to producers £25 per ton on all ore assaying 10 per cent. of metal. Active steps have been taken to procure more capital in England. This accomplished, and we trust that our facilities for meeting the growing demand both for coining and industrial purposes which this metal enjoys, especially on the European continent, will prove ample enough. The distance from here to Sydney (New South Wales) is 1050 miles, which is made by steam in four days.

Our English Letter.

Review of the British Iron, Steel, Metal and Hardware Trades.

(From our Regular Correspondent.)

SHEFFIELD, Eng., Jan. 29, 1877.

THE EASTERN QUESTION

is now a little less prominent, owing to the dissolution of the Constantinople conference, and the departure thence of the diplomatists with their hangers on. There is a general impression here that Russia will not fight at present, but no very long period will elapse before the whole question will be reopened and settled by force of arms. It is said that Prince Bismarck has expressed his unmitigated astonishment that Great Britain does not at once take possession of Egypt and hold it in protectorate. The idea is not bad and may some day be acted upon, but at present there does not appear to be any immediate reason why we should annex the land of Pharoah. Some wicked people suggest that the German Prince would not be sorry to see us quarrel with France on the subject—hence this delicate hint.

TRADE PROSPECTS

are, on the whole, a little more cheerful than when I last stained paper on your behalf. This is partly the result of the buying for the quarter, and also by reason of the stimulus which the rail and foundry branches are certainly experiencing. Many people think that we may now look forward to a revival, which may possibly become pronounced by the beginning of autumn. In the iron trade proper prices remain steady, and in some cases are rather higher.

THE WEATHER,

like the poor, is always with us. Hitherto we have had no winter in the ordinary acceptation of the term, Jupiter Pluvius having maintained his ascendency for about four months past. There was a change yesterday, however, and some snow has fallen during the night. We want a heavy snowfall to protect and foster our cereal crops and the grass lands.

SERIOUS FIRES

have taken place in various parts of the country during the week, so that I hereby solemnly recant the opinion that hot weather is most productive of conflagrations. At a village near Nantwich, in Cheshire, an old man and woman were burned to death in their own house. At Bradford the fine cloth mill of Mr. H. W. Ripley was almost entirely destroyed, the damage being estimated at about £35,000. At Milnrow, West Yorkshire, the Ladyhouse Cotton Mill was destroyed, with damage put down at £15,000. This place was burned in less than two hours, a fact which supports what I have occasionally said as to the mode of constructing such places. Then, again, at Spen, near Cleckheaton, the Butts flannel, &c., mills were destroyed by fire, the damage being estimated at £17,000.

TERRIBLE COLLIERY ACCIDENTS

continue to occur in this country, notwithstanding all the efforts of science and experience to obviate them. It may be said, indeed, that they are preventible, but that carelessness and cupidity promote them. The latest case is that which took place at the Stonehill Colliery of Messrs. Roscow, near Bolton, in Lancashire, where the coal took fire and 18 miners were suffocated. As is invariably the case where these "accidents" happen, the mine is reported to have been "remarkably free from gas," "believed to be one of the safest pits in the district," and "all that sort of thing," so that naked lights were in use throughout all the workings. It is asserted, however, that this accident did not originate in an explosion, but owing to the ignition of a tarred brettice cloth by a careless lamp lad. In any case, the naked light was the cause. The result was that the coal fired and filled the workings with a dense smoke, which suffocated the 18 men. Near Glasgow, the Station House Colliery was flooded and 4 men drowned. The influx was so great that the surface over the pit "caved in" for some 300 yards or more. Beside the men, 15 horses were drowned.

LAST WEEK'S EXPLOSIONS

were fortunately only fatal in one instance, albeit they were rather numerous. The exception was at Dewsbury, where an explosion at the gas works killed one man and did a great amount of damage. At the Norrimont slate quarries, Jersey, a quantity of blasting powder prematurely "bust up," and so seriously injured two men that they are not expected to live. At the doubtless pretty mining village of Shineyrow, near Durham, four persons who were engaged in making blasting cartridges were attacked by the rebellious powder, and now lament the occurrence—and some of their limbs. Lastly, so far as this present record goes, an explosion of fire damp took place at the Sirhowy Colliery, Monmouthshire, whereby three men were dreadfully injured. Cause—a naked light.

A FAILURE

in the shipbuilding trade has occurred at Birkenhead, where Messrs. Bowdler & Chaffer have filed their petition, with liabilities stated to amount to £55,000.

STEEL AND IRON MAKING ECONOMY.

At a recent meeting of the Leeds Foremen Engineers' Society, Mr. Walker (of the eminent firm of Tannett, Walker & Co., Leeds) alluded to Mr. I. Lowthian Bell's new process for making steel from ordinary iron and ridding it from phosphorus in the Bessemer converter before it reached the puddling furnace. Mr. Walker continuing, said that when the iron trade revived ironmasters would experience great difficulties from the want of puddlers. At least 5000 puddlers had been turned away in the Middlesbrough district, and most of these had been absorbed in other occupations in other districts. This difficulty could be avoided by using nothing but hematite iron, because they could do away with puddling by the Bessemer process. If hematite iron were to rise very much in price, Mr. Bell's process would become a valuable one; but so long as there was only £1 or 30/ difference in price between the two classes of iron it would scarcely pay to adopt Mr. Bell's extra process. The Bessemer process was undoubtedly the simplest of all for doing away with puddling, and all that was required was iron free from phosphorus and sulphur. A good deal had been said about Belgium and America being likely to run this country a very close race in the manufacture of iron and steel. He was thoroughly convinced that, so far as the manufacture of pig iron was concerned, it would be very difficult for any country to beat us. He thought there was considerable improvement to be made in the manufacture of wrought iron, and the furnaces, as a rule, consumed far too much coal. Still, we could make bar iron more cheaply than any other country. A good trade could be done with America if only the tariff were taken off. The Americans were quite wrong in maintaining the new tariff, which was the protection of a few to the injury of the many. With regard to the saving of coal, he was convinced that the whole of the steam engines in use were to be thrown on the scrap heap and replaced by new ones, a saving of 10 per cent. on the outlay could be effected. The saving of coal, so far as steam engines was concerned, was to be effected by having high pressures, and that meant better boilers.

SCOTCH PIG IRON

has been rather steadier during the week, but the shipments have not been large and the stock continues to increase, there being now over 116,000 tons in Connal's stores at Glasgow.

Messrs. Wm. Colvin & Co. say that "there has been a better feeling, not caused by any improvement in the demand, but by an impression that Scotch iron is worth holding at present prices."

Messrs. James Watson & Co. (Glasgow, Jan. 26) report that "the market for Scotch pig iron opened firm this week, busines being done at 56/10½ to 57/, cash. Since then it has been steady, closing quiet, however, this afternoon at 56/10, nominally. Shipments last week were 5141 tons, against 6288 tons in the corresponding week of 1876." We quote:

	No. 1.	No. 3.
G. M. B., at Glasgow	57/9	55/
Gartsherrie, "	63/	56/3
Coltness, "	66/	56/3
Summerlee, "	63/6	56/6
Langloan, "	64/	57/
Carnbroe, "	59/	56/
Calder, at Port Dundas	63/6	56/6
Glengarnock, at Ardrossan	62/	55/6
Eglinton, "	58/6	54/6
Dalmellington, "	58/6	54/6
Shotts, at Leith	64/	58/
Kinneil at Bo'ness	58/6	54/6

Messrs. J. E. Swan & Brothers' prices current of the same date gives Gartsherrie No. 1 at 63/; Coltness No. 1, 66/; Glengarnock No. 1, 61/; and Eglinton, 58/. There are now 116 furnaces in blast in Scotland, as against 117 at the same date last year. Freights remain as before, at 2/ from Glasgow to New York.

TRADES OF SHEFFIELD.

The week has passed over very quietly, and there are still no signs of any particular change for the better in the iron trade proper. In some quarters there is certainly the hopeful feeling, of which I have spoken several times recently, but realization is as yet deferred, and appears to be still a matter of the future.

Whether the iron trade revive or not in the immediate future, it is, at all events, pretty clear that we are on the eve of a rise in the prices of Bessemer steel and rails. Two or three of the leading concerns of that kind in South Yorkshire are now fully engaged, and others which have been doing next to nothing for some time are now better engaged on rails. At two of the oldest establishments no special exertion is being used to secure rail orders at present, but as soon as another 10/ has been put on the current quotations, orders will be taken. This view of the matter is also strengthened by the reports which reach us from South Wales, where the ironmasters are stated to have recently secured heavy Australian contracts. There is, of course, no strict relevancy between the iron and steel rail trades, but it is certain, at any rate, that when the former is busy the latter have better chances of success. At present steel rails are being done at very low prices, the current quotations being £7 to £7. 10/ per ton in trucks, or slightly more f. o. b. Hull or Liverpool. Water carriage to Hull is now favored, as being cheaper than by railway. Ordinary pig iron continues firm, and there have been several good sales of foundry brands within the week.

I hear that some of the North and East Derbyshire iron smelters are pushing their productions in Staffordshire and Lancashire with a considerable amount of success, notwithstanding the close competition of the home makers in those districts.

In ordinary merchant iron there is still nothing doing, and up the time of writing I hear of no alteration in prices. Common bars are offered at a trifle over £6 per ton, or delivered in Manchester or Liverpool at £6. 5/, yet these low figures do not appear to attract buyers to any appreciable extent.

I understand that John Brown & Co., Limited, have not resumed the working of their Swinton forge, where there were, up to a short time ago, 28 furnaces. It is stated, indeed, that there is no likelihood of the place being restarted at present.

Messrs. Jessop & Son, Limited, have now completed the transfer of their branch establishment at the Park Works, Sheffield, to their central—and now sole English—works at Brightside, the change having been effected in order to economize expenses.

Mr. Alfred Allott, who recently presented a petition for liquidation, with £210,000 liabilities, under circumstances detailed at the time, has again assumed the head of the accountancy firm of Allott & Co., from which he withdrew just prior to the presentation of his petition. He now announces his intention of "devoting himself to his profession." It will be remembered that Mr. Allott was largely interested in various iron and coal concerns in this country and in America.

In cast steel a little more is doing just now, owing to the fact that the cutlery and other local users have been making their purchases for the quarter.

A dispute which had arisen in the machine knife trade at Hackenthorpe, near Sheffield, has been settled by mutual concessions.

The coal and coke trades are so utterly uninteresting and dull that it is a thankless task to offer any comment upon their condition. Very few of the local collieries are working more than 3¼ or 4 days weekly, and at the majority hardly 3 days is averaged. Numbers of men are being discharged, both in South Yorkshire and Derbyshire, the production being still greatly in excess of the demand. Prices are on a purely nominal basis, and must almost inevitably go lower, as also must the wages of the miners.

THE "SHAW" AMERICAN KNIFE.

A case of some interest to your readers came before the local magistrates on Friday. It was one in which Henry Hellwell, spring knife cutler, claimed 13/4 from George Wostenholm & Sons (limited), Washington Works, Sheffield, as compensation for their "refusing and neglecting to supply him with work from January 19th to January 23d." In opening his case plaintiff's solicitor said his client was employed by the defendants, and worked for them under a special agreement. He worked for them up to the 19th, and on that day he saw Mr. Payne, the manager. Some conversation then took place as to the making of a "Shaw" knife which had been brought over from America. Plaintiff had never made any such knife, and he contended that before he did so a special agreement should be made. His client asked for 11/ per dozen of fourteen, but Mr. Payne only offered 9/6. However, a few days afterward, an inducement was made by the addition of a shilling, but Hellwell also then declined to make the knife, and Mr. Payne refused to find him any other work. * * * * It was the opinion of the spring knife cutlers that 11/ per dozen should be paid for the making of the "Shaw" knife. He maintained that before the defendants could compel the plaintiff to make any new knife they should arrange as to the prices, and find the men work until any dispute in respect to the price was settled.

A SHAW KNIFE PRODUCED.

A "Shaw" knife was then produced in court, and the plaintiff said: The plate was thicker, the springs and blade were thicker, the bolster was broader and thicker, and the knife was longer altogether than any he had made in that shape. He had made knives in that shape, but not so big nor so long. He had made the "man shape" knife, and he believed it would take him seven or eight hours longer to make the "Shaws" than the "man shapes, which were 3¼ inches. He had no objection that knives should be brought from America as patterns that they might be made in this country. The reason why he refused to do them for 9/6 was because he could not reckon them, and he also said if anybody else in the place made them he would do the same. He did not know whether that price would pay him or not. Mr. Payne only mentioned 9/6 either on Monday or Tuesday. He did not know whether 9/6 was a fair price or not, and could not tell until he tried them. He was not asked to try them, but was told to do them.

After some further evidence, the case was adjourned for a week.

STAFFORDSHIRE AND BIRMINGHAM

again furnish me with no news of any real moment, the iron trade being in a very quiet condition indeed, and prices wholly unchanged. All sorts of wire have been lowered 4/ to 6/ per bundle; fencing wire, 10/ to 15/ per ton; plumbers' brass foundry goods, 5 per cent.; sad irons, 20/ per ton lower; agate scales, about 5 per cent.; and iron washers, about 5 per cent., net.

SOUTH WALES AND MONMOUTHSHIRE

are also not very productive of materials for comment this week, excepting the fact that the recently placed orders for iron rails on Australian account will keep Dowlais, Tredegar, Ebbw Vale, Rhymney, &c., fairly employed for eight or nine months hence. Mr. Fothergill, M. P., has retired from the management of the Aberdare and Plymouth works. Mr. Crawshay has not yet reopened Cyfarthfa. The coal trade is very brisk, heavy speculative shipments having been made to Mediterranean and other ports on the chance of war.

THE METAL MARKETS

have remained quiet, speculation having been checked by the Eastern crisis.

Von Dadelszen & North report that in "*Copper*, Chili bars have been flat, and were sold at £73. 10/; they are now firmer, the last sales being at £74, for g. o. b., up to £75 for picked brands. The charters for the first fourteen days of January were 1700 tons, of which 750 tons were for America, 100 tons for Europe and remainder for England. The Wallaroo, in public sale, was sold at an average of £83. 2/4 for cakes, and £83. 5/1 for ingots; the Burra was sold at from £79 to £80, chiefly at £79. 17/6. Part of the E S K was sold at £79. 17/6, the remainder being withdrawn thereat; the Mountperry was sold at £79. 12/6. The last sales of Wallaroo were at £83, and of Burra at £80. English dull, tough quoted £80 to £81; select, £82 to £83; strong sheets, £87. *Tin* has been quiet, with small sales of Straits at £75, and Australian at £73. 10/; 50 tons of Australian for distant arrival were done at £73. In Holland, Banca quoted 45fl., and Billiton sold at 44fl.; English ingots £78. Tin plates are quiet. *Lead* steady, £21. 15/ to £22. *Spelter* dull, £21 to 21. 5/. *Quicksilver*, £8 to £8. 5/ per bottle. *Antimony*, £56."

The *Mining Journal* remarks: "*Copper.*—Prices have ruled steady, with little or no variation. Chili, £74, g. o. b.'s cash. Special brands, £74. 10/ to £75. 10/. Wallaroo, £83. Burra, £80. *Lead.*—The demand is limited, but the market keeps steady, and there is no change in quotations either for English or Spanish. *Spelter.*—The market has been inactive, and prices are unimproved. *Quicksilver.*—Sales continue to be made in this metal at £8, at which a moderate inquiry exists."

Latest Liverpool prices are:

Iron: f. o. b. in Liverpool, per ton.

	£	s.	d.	£	s.	d.
Merchant bar	6	15	0 @	6	17	6
Merchant bar, in Wales	6	5	0 @	6	7	6
Staffordshire	7	5	0 @	9	15	0
Hoop	8	0	0 @	9	0	0
Sheet	9	5	0 @	10	0	0
Nail rod	7	10	0 @	8	0	0
Bar, best crown	7	5	0 @	8	0	0
Boiler plates	9	5	0 @	10	10	0

Tin Plates: f. o. b. in Liverpool, per box.

	£	s.	d.	£	s.	d.
Charcoal, I. C	1	3	0 @	1	7	0
Coke, I. C	0	19	6 @	1	2	0

Copper: Delivered in Liverpool, per ton.

	£	s.	d.	£	s.	0
Bolt and Sheathing	89	0	0 @	0	0	0
Tile	82	0	0 @	0	0	0
Tough cake	82	0	0 @	0	0	0
Best selected	84	0	0 @	0	0	0

INDUSTRIAL ITEMS.

VERMONT.

J. L. Davis, of Easton, Pa., has bought the old furnace at Forestdale, near Brandon.

The Brandon Manufacturing Company (Howe Scale Works) are going to double their capital stock of $250,000.

MASSACHUSETTS.

J. M. Munson, of Greenfield, has made from 8000 to 10,000 pairs of his patent skates this winter, his first season, and proposes to do more next year; while the tool company report a 50 per cent increase of sales last year over those in 1875.

The American Lock Co. have declared a dividend of 8 per cent.

By the terms of the nail manufacturers' combination the works in East Weymouth are allowed to cut only 3500 casks of nails a month, and this they do in about a week and a half; the balance of the month the works are idle.

CONNECTICUT.

The Connecticut Valley Manufacturing Company, at Centerbrook, are running to their fullest capacity. They are running four trip hammers on augur bits and their other works in proportion. The water ran over the dam last week for the first time since March last.

The Frary Cutlery Company, of Bridgeport, are running ten hours a day and are full of orders.

The Eagle Lock Company, of Terryville, have purchased the large blower that was on exhibition in Machinery Hall at Philadelphia. It is to be used to take the dust that arises in their grinding and polishing room through conductors to out-doors. It cost $1600, and weighs five tons.

The Messrs. Lowe & Watson, of Bridgeport, have been busy all winter on orders for the celebrated Lowe patent boilers. They have just turned out four large ones, and have now four more in the works, two of which are one hundred horse-power each, and will probably be as fine as any pair of horizontal tubular boilers in the State. They are also very economical in regard to fuel.

The Bridgeport Cartridge Company have a large contract from the Russian government, and are now making cartridges for both the Russians and Turks.

The Turner & Seymour Manufacturing Company, of Wolcottville, on the 1st instant made a reduction of 10 per cent. in the wages of their employes.

The Sharps' Rifle Company have obtained no specially large contract since locating in Bridgeport, but the orders for their target rifle have been sufficient to make business very good at the factory this winter. About one hundred hands have been given steady employment.—*Farmer.*

The Plimpton Manufacturing Company, of Hartford, have leased the upper story of Batterson's new block, where they will continue their work, which was stopped by the great fire of January 28th. New machinery and stock will be procured as soon as possible. The company have a large number of orders, many of them foreign, to fill, and will be kept busy as soon as they can commence work again.

NEW YORK.

The Rensselaer Mill, at Troy, after a term of idleness, started up two weeks ago.

There is one blast furnace and 32 puddling furnaces in operation at Burden's mills, Troy. The rolling mill is running, as are also the repairing shops. The water mill was idle two weeks ago, but was expected to start up this week. A committee of puddlers waited on the Messrs. Burden, on the afternoon of the 8th inst., to find out when work would be resumed in the puddling mill. No definite time has been fixed upon.

Work was resumed at Filley's Foundry, at Green Island, on Monday morning, the 5th instant.

The furnace of the Clinton Iron Company has not been in blast for over a year.

J. B. Carr & Co., of Troy, are manufacturing a chain 450 feet in length and composed of 500 links. Its weight will be 30,000 pounds. It is intended for E. Barstow & Sons, of San Francisco, and is to be used on a marine railway. Its value will be $2200.

NEW HAMPSHIRE.

S. C. Forsaith & Co., of Manchester, make a pretty good showing in the line of shipments during the last 30 days. Among the more important we note the following: One 25 h. p. and one 15 h. p. portable engine with complete circular saw mill outfit to Canton, Miss.; engine and boiler to Detroit, Kansas; 50 h. p. boiler to Chelsea, Iowa; large engine lathe and iron planer to St. John, N. B.; lathe to the European and N. A. R. R. shops, Bangor, Me.; Daniels' planer to Cleveland, O.; wood planer and molder to Buffalo, N. Y.; large trip hammer to Roseville, Ill.; 80 h. p. portable engine to West Milan; 90 h. p. boiler to Belfast, Me.; 60 lb. Palmer power spring hammer to Knowles Steam Pump Works, Warren, Mass.; 400 lb. drop press to Syracuse, N. Y.; complete outfit for a machine shop in Vermont; leather scouring machine to Winthrop, Mass.; newspaper folding machines to Westchester, Pa., and Rochester, N. Y.; three of their combined hand fire engines and hose carriages (each with 300 to 500 feet of hose) to Western towns; circular saw mill outfit to Westminster, Conn.; 20 h. p. boiler to Lee, Mass.; complete outfit for an axe handle and spoke shop in Barrington; 36 in. grist mill and 18 h. p. portable engine to Epping; 26 in. rotary bed planer to Greenfield; large iron planer to Palestine, Texas; double-headed bolt cutter and nut tapper to St. Louis, etc. In addition to the machine business they run a box factory, cutting about a million and a half of box shooks per annum.

NEW JERSEY.

The Cumberland Nail and Iron Works, at Bridgeton, were to resume operations on Wednesday, the 7th inst., and at Millville several glass furnaces were to start up.

The rolling mill of McClees & Co., Phillipsburgh, has two full trains of sheet rolls, one "run out," or refinery, and three knobbling fires, together with heating, puddling and annealing furnaces. These ran nearly all of last year, producing only 180 tons less in 1876 than in 1875. They carry 20,000 to 30,000 bushels of charcoal for forge. They galvanize their bloom iron.

PENNSYLVANIA.

Stack No. 5, at the Glendon Iron Works, was blown in on the evening of the 3d.

The costly structure at Ferndale, intended for the Standard Tube Works, is lying idle, a recent lease of it having been thrown up. The Catasauqua *Dispatch* says rumor had it that the Lehigh Valley Railroad Company proposed to use it as a depot for unused passenger cars, where they could be stationed in case of lack of travel, and where repairing and repainting could be attended to. It is a building 500 feet long by 112 wide, with iron truss roof, covered with slate, the sides being closed in with corrugated iron sheeting.

The bolt works of Messrs. Welsh & Lea, 145 Columbia avenue, Philadelphia, are second among the oldest in the country, having been established by E. & P. Coleman in 1845. This firm was succeeded in 1865 by M. J. Colcman, the present firm taking the works in 1875. The original establishment was located at Twenty-first and Arch streets, and was removed to its present location about two years since. The works have a frontage on Columbia avenue of 220 feet, with wings on the other streets of 175 feet each, the lot being 350 feet deep. The firm employ from 75 to 200 hands. Of Norway carriage bolts their product in 1876 was something over 16,000,000 bolts.

Sheeler, Buckwalter & Co.'s large new iron foundry at Royer's Ford, Montgomery county, will soon be ready for work. It is said to be one of the finest of the kind in the country.

Some seven or eight puddling furnaces at the rolling mill of the Phœnix Iron Company, or one-third of the entire number, are now in operation. The foundry is running on about half time.

Employes in the iron works at Johnstown have had their wages increased 13 per cent., and business prospects are brightening.

The Pencoyd Iron Works, of A. & P. Roberts, at Philadelphia, are running to their full capacity on contracts for bridge iron and for 4000 car axles for the Pennsylvania Car Trust Company.

The Pottstown Iron Company shipped on Tuesday, the 6th, three car loads of nails, and the day previous two car loads, or about 1000 kegs in two days.

About one-half of the industrial works at Newcastle are in operation at present. The large furnace of Reis, Brown & Berger, the Rosena, is running on native ore, with a good prospect of success. The ore is said to be almost inexhaustible.

Lemont Furnace has been stopped to reline the stack and to make other necessary repairs.

Stack No. 1, at the Roberts furnaces, Allentown, was put in blast this week.

Seventeen hundred pounds of chain are produced daily at the Westerman Iron Works, Sharon.

Mr. Charles F. Shœner has leased the furnaces at Redington, and will continue the business under the name of the Coleraine Iron Works. The office of the company is at 238 Walnut street, Philadelphia.

The mills of J. Wood & Bro., at Conshohocken, are running day and night.

Messrs. Wolfertz & Waldman, cutlers and hardware dealers of Allentown, are putting new machinery into their shops for the purpose of manufacturing pocket knives.

Silver bearing quartz has been discovered in Plunkett's Creek township, Lycoming county.

A fissure vein of lead 4 feet thick has been discoveredin Blair county.

Wm. G. Neilson, Esq., late secretary of the Centennial Committee of the American Institute of Mining Engineers, has been appointed general manager of the Standard Steel Works, at Lewistown, Mifflin county. The Philadelphia office is No. 218 South Fourth street.

The Pennsylvania Steel Company, at Baldwin, have received an order for 1000 tons of hammered steel rails. Miles of rails are turned out daily, the rail mill being in full operation.

The Paxon Mill, Harrisburgh, has resumed work. The Chesapeake Nail Works have 14 puddling furnaces, and consume all the iron they make. The Central Works is a boiler plate mill, and the puddlers are on single turn.

The Glamorgan Iron Company blew in one of their furnaces last week. We understand that it is working satisfactorily.

The Andover Iron Company are blowing out their furnace for repairs.

PITTSBURGH AND VICINITY.

A meeting of the Western Nail Association was held in this city Wednesday.

S. D. Hubbard & Co. are quite busy and running their works to full capacity. They have orders for quite a number of their "Eclipse" steam pumps. These pumps are suitable for blast furnaces, rolling mills, mining and oils.

Mansfield & Co., brass founders, &c., of this city are quite busy, with large orders ahead. They have orders for brass and plated equipments for over 400 engines.

Shoenberger & Co. started their nail factory double turn, Monday, the 12th.

McIntosh, Hemphill & Co., are filling an order for double-acting self-feeding nail machines for a firm in Scotland. They are also making the castings for a large number of Coyne's automatic nail pickers.

The National Tube Works Company McKeesport, are now supplying quicksilver flasks, which were formerly bought exclusively in England. They are made of very thick tube iron, and will hold about two quarts each.

The Allegheny Car and Transportation Co. are building 150 refrigerator cars for the Pennsylvania Railroad, to be used in carrying meat from Texas to New York.

The attention of the United States District Court was occupied last Saturday by the hearing of an argument on a motion for an injunction in the case of the Phœnix Mfg. Co., of Massachusetts, *vs.* McCullough, Dalzell & Co., this city. Complainants allege that defendants are manufacturing crucibles for the melting of steel, by a process or in a way in violation of a patent owned by the New England firm. At the conclusion of the argument, which was a lengthy one, complainants withdrew their motion for the injunction.

Messrs. Anderson & Passavant started up the old Wharton Mill on Tuesday morning, the 13th inst. They will only use part of it for making the wire for the East River Bridge.

MARYLAND.

The fire brick works, at Elerslie, recently purchased by Messrs. Gardner, Stuart & Co., have been put in complete order for turning out fire brick rapidly. These works were fitted up several years ago by Messrs. Reese, Lemon & Co., with a view to extensive operations, being in close proximity to one of the finest and most extensive banks of fire clay in this country, which is connected to the works by a substantial tramway. The works are situated immediately on the line of the Connellsville branch of the Baltimore and Ohio Railway, six miles northwest of Cumberland, and are now running.

But one of the Catochin furnaces is in blast making charcoal iron. It is running this month on orders, making about 50 tons per week.

A number of the Baltimore charcoal furnaces have blown out since the first of January in consequence of the difficulty of obtaining stocks of wood during the very severe winter.

VIRGINIA.

The Brown Hill Furnace, in Wythe county, made but a short blast last year, and the iron was sold as fast as made. A short run will be made this year.

WEST VIRGINIA.

The forge department of the new Benwood Mill, at Wheeling, commenced operations on Monday last.

There has been a general reduction in the wages of the employes of the Arlington Stove Works, of Wheeling. The molders' wages have been reduced 7½ per cent., and the laborers from $1·25 to $1 per day. The men have accepted the reduction.

The new board of directors of the Benwood Iron Works, organized on Tuesday, the 6th inst., by re-electing all of its old officers, viz., Alex. Laughlin, president; L. S. Delaplain, vice president, and Major Loring, secretary.

OHIO.

An organization under the name of the Commonwealth Iron Company has been formed, the main office of which is to be located in Cleveland. The stockholders are William H. Harvey, Henry A. Harvey, Edward H. Harvey, Frederick L. Tuttle and Horace A. Tuttle, of Cleveland; Albert H. Tuttle, of Columbus; P. L. Kimberly, of Sharon, Pa.; and Amos E. Kimberly, of Iowa. This company own about 3700 acres of land in the Menominee iron region. The land is exceedingly rich in ore, two veins of a first-class character having been discovered. One vein, which consists of ore good for Bessemer purposes, is 60 feet wide, and the other is 50 feet in width. On Monday evening, the 5th inst., the company elected the following officers: H. A. Tuttle, president; P. L. Kimberly, vice president; W. H. Harvey, secretary and treasurer.—*Trade Review.*

The nail feeding machine patented by R. C. Grant, of Pomeroy, consists of an attachment, which can be adjusted, it is said, to the machines now in use. It turns the plate just as is done in hand feeding, and, in fact, imitates the present process. Further trial will show whether the new machines can be trusted to work alone without a constant watching, which will cost as much as the wages now paid to the plate turners.—*Iron Journal.*

The Akron *Beacon* says: The chain works formerly owned by Mr. L. Chevrier, but sold at assignee's sale, two weeks ago, have been temporarily rented by him and were again put in operation last Monday. Some 30 men are now employed. There are a number of the workmen who have made chains for Mr. Chevrier for the last 28 years. Mr. Chevrier has every prospect of a good trade, orders for his manufacture being plenty. He is not so desirous of making money as he is of providing means of support for the men who have been faithful to him for so many years.

The Cherry Valley Iron Co., Leetonia, resumed work at their mill on the 10th of January, making only muck bar and billets, the latter for chain iron.

The Leetonia furnaces are both in blast. One of these has been running since it blew in on one grade of pig iron made from native ore, namely, a black band ore. The iron is being used in competition with Scotch pig, and is giving the very best satisfaction.

The Etna Furnace, at Ironton, has been stopped for a couple of days, cleaning out the flues.

The Iron and Steel Co.'s Furnace, at Ironton, will resume operations as soon as their coke arrives, which is expected every day. The company are receiving native ore and they have a great amount on hand. The forge department of the mill is idle at present.

The Belfont Nail Mill, at Ironton, is in full operation, having started their factory up on Monday, the 5th inst.

The new boilers which J. H. Fisher & Co., of Ironton, are putting in for the Lawrence Mill Co. are about completed. It is said that the mill will be in full operation this week.

The Bolt and Spike Works, at Youngstown, resumed operations last Thursday.

A steam hoist for the Jackson Iron Company's blast furnace, at Fayette, Mich., is being built at the Cuyahoga Steam Furnace in Cleveland.

Messrs. Bowler, Maher & Brayton, proprietors of the Cleveland Foundry, are running their works on full time, employing 70 men, mostly on heavy wheels for passenger cars.

The Tuscarawas Coal and Iron Company, manufacturers of foundry pig iron, whose office is in Cleveland, the furnace works being at Canal Dover, are making extensive repairs on the buildings at the latter place. The firm has been accumulating stock of late and if there is a little improvement in the market will blow in speedily. Mr. J. F. Card, of Cleveland, is the president and general manager of the company, and Mr. H. Anderman, of Canal Dover, agent.

The Newark Iron Company, of Newark, offer their rolling mill for sale.

MICHIGAN.

The stock piles at the Michigamme Mine aggregate at present about 22,000 tons, and will be swelled at the present rate of production to 50,000 tons before the opening of navigation.

Campbell & Co., of Ishpeming, at the Superior Boiler Works, are building for the Mitchell Mining Company a new boiler 24 feet long, 54 inches in diameter, with two 18 inch flues; also breeching and smokestack for the same.

The Pioneer Furnace, at Negaunee, will not blow in for some time—at least, not until the Iron Cliffs Company can dispose of some six thousand tons of pig iron they have on hand.

KENTUCKY.

Mt. Savage Furnace resumed operations last week.

The nail factory department of the Norton Iron Works, at Ashland, went to work on Monday morning, the 5th inst., and will continue on for about two weeks, at which time it is probable that all of the departments will start and continue on as long as business will justify. The furnace is working poorly and making but a small quantity of iron, but that of a good quality. They have shipped since the opening of navigation 5475 kegs of nails and 811 tons of pig metal. The Ashland Furnace is working finely, making from 33 to 38 tons of iron of good quality per 24 hours, being tapped every 8 hours.

TENNESSEE.

The Chattanooga Iron Co. have no stock of iron on hand unsold, and have 800 to 1000 tons sold ahead. This furnace is making a very enviable reputation for the character of its product.

On the 18th ult. the Chattanooga Furnace turned out 35⅛ tons of good Gray Mill Iron, and during the next 12 hours she turned out a little over 20 tons. This was straight work without any stopping. The furnace is now running out an extra quality of soft No. 1 Foundry to fill Southern orders.

GEORGIA.

Rome has a successful plow factory, turning out a hundred plows per week.

DAKOTA.

The North Pacific Company are now forwarding the iron for a 35 mile extension next year, on the west end of the road, and in case the bill extending the time for completion passes, will build 205 miles west from Bismarck next season.—*Bismarck Times.*

The Coal Market.

Anthracite.

PRICES FOR FEBRUARY.

	Lump.	Steamer.	Broken.	Egg.	Stove.	Chestnut.
PENNSYLVANIA COAL CO., at New York, 40 cents per ton additional. Deliverable at Weehawken.						
Pittston	3·00	3·00	3·00	3·10	3·60	3·35
" Auction prices.	...	2·82	2·82	2·88	2·45	...
DELAWARE AND HUDSON CANAL CO., at Weehawken, N. J.						
Lackawanna	2·75	2·75	2·75	2·90	3·60	3·35
LEHIGH AND WILKES-BARRE COAL CO., f.o.b, at Port Johnson, N. J.						
Old Company's Summit	3·75	....	3·25	3·25	3·75	3·25
Honey-Brook Lehigh	3·75	....	3·25	3·25	3·75	3·25
Wilkes-Barre	3·00	3·00	3·00	3·00	3·75	3·25
Plymouth Red Ash	....	....	3·00	3·00	3·85	3·35
FREDERICK A. POTTS, 110 Broadway, New York.—Port Johnson, Elizabethport and Hoboken.						
L. & W. C. Co.'s Wilkes-Barre	2·85	2·85	2·85	3·00	3·65	3·25
L. & W. C. Co.'s, Old Co. Lehigh	3·75	....	3·25	3·25	3·75	3·25
L. & W. C. Co.'s, Plymouth Red Ash	....	....	2·85	3·00	3·75	3·35
L. & W. C. Co.'s, Honeybrook Lehigh	3·75	....	3·25	3·25	3·75	3·25
Scranton	2·85	2·85	2·85	3·00	3·65	3·25
Lackawanna	2·75	2·75	2·75	2·90	3·60	3·35
WHITNEY, M'CREARY & KEMMERER, 111 Broadway, New York.—John White, Sales Agent.—F.o.b. at Elizabethport or South Amboy.						
Upper Lehigh and Council Ridge	3·75	....	3·25	3·25	3·75	3·35
Everhardt Wyoming	....	....	....	3·00	3·75	3·35
Wilkes-Barre	....	....	3·00	3·00	3·75	3·25
Shamokin	....	....	....	....	3·75	3·25
East Spring Mountain Lehigh	3·75	....	3·25	3·25	3·75	3·25
A. S. SWORDS, 111 Broadway.—Coal at Weehauken.						
Pittston Coal	2·90	2·90	2·90	3·00	3·55	3·30
G. B. LINDERMAN & CO. No. 111 Broadway.						
Sugar Loaf, (Lehigh)	3·75	...	3·25	3·25	3·75	3·50
MEEKER & DEAN, 111 Broadway.						
Lackawanna Valley	2·75	2·75	2·75	2·90	3·60	3·10
Kingston, Wy'm'g White Ash	2·75	2·75	2·75	2·90	3·60	3·10
Chauncey Wyoming Red Ash	....	....	....	....	3·00	3·75	3·10
Wilkesbarre	2·75	2·75	2·75	2·90	3·60	3·10
Beaver Brook Lehigh	3·75	....	3·25	3·25	3·75	3·25
LEHIGH VALLEY COAL CO., corner Courtlandt and Church streets.—F. o. b. at Perth Amboy.						
Spring Mountain Lehigh	3·75	....	3·25	3·25	3·75	3·50
Spring Brook Lehigh	3·75	....	3·25	3·25	3·75	3·50
Jeddo Lehigh	3·75	....	3·25	3·25	3·75	3·50
Highland Lehigh	3·75	....	3·25	3·25	3·75	3·50
Phila. Coal Co.'s. Lehigh	3·75	....	3·25	3·25	3·75	3·50
Wyoming White and Red Ash	....	3·00	3·00	3·00	3·75	3·50
Franklin (Wilkesbarre)	....	3·00	3·00	3·00	3·75	3·50
Centralia	3·00	3·00	3·00	3·00	3·75	3·50
A. PARDEE & CO, 111 Broadway, Room 34.—F. o. b. at Perth Amboy and Hoboken.						
Hazleton, Sugar Loaf, Lattimer, and Hollywood Lehigh Coals	3·75	....	3·25	3·25	3·75	3·30
Mount Pleasant, f. o. b. at Hoboken	....	....	3·15	3·15	3·50	3·30

Bituminous.

Cumberland, at Georgetown	$3·50	@	$
West Virginia, at Baltimore	4·50	@	6·00
Kittanning f. o. b., Baltimore	4·25	@	4·35
Newburg Orrel, at "	....	@	4·50

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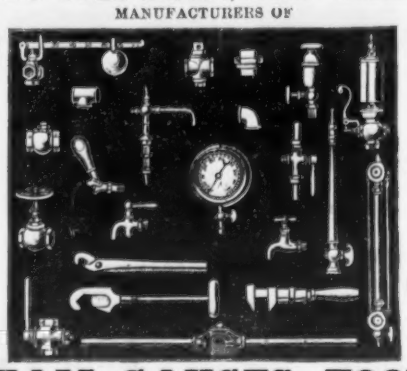

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Saving of 25 per cent. dead weight, and increase of 50 per cent. in strength.

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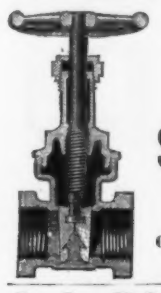

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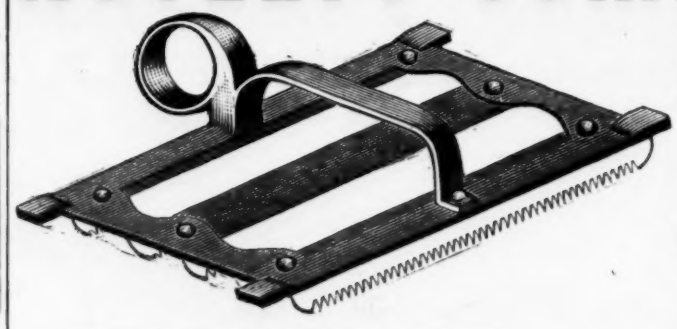
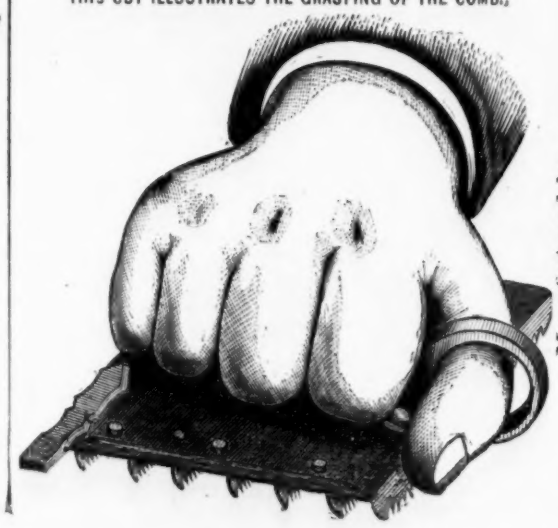


THIS CUT ILLUSTRATES THE GRASPING OF THE COMB.



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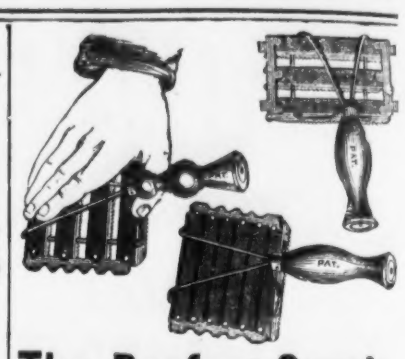

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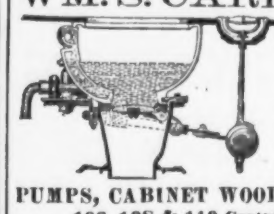

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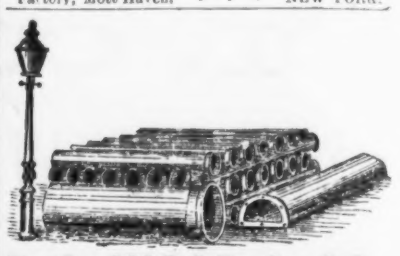

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and Index to Advertisements.

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Anvils.
American... ₩ lb 15c. dis 20 %
Wright's... ₩ lb gold 10¼c; over 250 lbs 11c, gold
Armitage's Mouse Hole... gold 10 @ 10¼c
Wilkinson's... ₩ lb gold 11c
Eagle Anvils (American)... ₩ lb 9c dis 20 %

Ash Sifters.
J. E. Corning's Barrel Head... dis 10 %
Rival... ₩ doz $12·00 dis 10 %
Square... per doz $2·50 dis 20 %

Augers and Bits.
Conn. Valley Mfg. Co.; Douglass; Ives; Beecher (French, Swift & Co); Griswold; Nobles Mfg. Co; Kasson's Patent... 1st quality... dis 45 @ 50 %
Cook's, Douglass Mfg. Co... dis 50&5 %
" Ives'... dis 40&10 %
Snell Mfg. Co... dis 35 @ 30&10 %
Jennings' Bits... dis 10 %
Ives' "Jennings" Bits... dis 5&10 %
Ives' Single Twist Bits... dis 25 @ 30 %
Andrews' Bits... dis 40&10 %
Griswold's Patent Bits... dis 30 %
Expansive Bits, Clark's... small, $18; large, $26—dis 15 %
" " Ives... $20 @ $30—dis 30 %
" " Blake's... $30—dis 40 %
" " Parmelee's... small, $30; large, $36... dis 25 %
Hollow Augers, Douglass'; Ives'; French, Swift & Co... dis 33⅓ @ 40 %
" " Bonney's Adjust.. ₩ doz $48—dis 25&10 %
" " Stearns' Adjust... ₩ doz $48—dis 25&10 %
" " Ives' Expansive... each $4·50—dis 40 %
" " Universal Expansive. each $4·50—dis 10 %
Gimlet Bits—Screw, $7·50; no screw, $9... dis 20&10 %
" Diamond... per doz $1·00 dis 30 %
Double Cut Gimlet Bits, Shepardson's... dis 30 %
" " Ct. Valley Mfg. Co.. dis 30&10 %
" " Hartwell's... dis 50&5 %
" " Douglass'... dis 25&10 %
" " Ives'... dis 30 %
Morse's Bit Stock Drill, List of Jan'y 1, '76... dis 25 %
L'Hommedieu's Ship Augers... dis 20 %
Watrous Ship Augers... dis 20 %
Vaughan's Post Hole—
6 in. $23 60; 7, 8 and 9 in. $25 per doz... dis 20 %
Leed's... $4 00 each—dis 10 %

Awls, Brad Sets, &c.
Awls, Sewing, Common... per gross $1·35—dis 25 %
" " Best... per gross $1·60—net
" Shouldered Peg... per gross 2·25—dis 15 %
" Patent Peg... per gross ·60—dis 15 %
" Shouldered Brad... per gross 2·65—dis 25&10 %
Brad Sets, Aiken's... per doz $12·00—dis 40 %
" No. 42, $10·50; No. 43, $12·50... dis 55 @ 60 %
" Clark's... dis 50 %
" Stanley's Excelsior... No. 1, $11·00, dis 25&10 %

Axes.
Blood's... per doz $10 00 @ 11 00 net
D. R. Barton Tool Co... ₩ doz $12 00 net
Hunt's... ₩ doz $11 50 @ 13 50
Collins'... ₩ doz 10 00 @ 12 00 net @ dis 5 %
H. Clark's (J.C.W. & Co.) bron'd or red.. ₩ doz $10, dis 5 %
Hurd's Razor Blade... ₩ doz 9 00 @ 11 00
Simmons'... ₩ doz 11 00 @ 11 50
Mann's... ₩ doz 9 00 @ 11 50
" Double Bitted... ₩ doz 21 00 @ 28 00
Underhill's... ₩ doz 12 00 @ 13 00
" Crown... ₩ doz 12 50 @ 13 50
John Leverett's... ₩ doz 10 00 @ 14 00
Ten Eyck... ₩ doz $9 00 @ 11 00 net
M. H. Jones & Co... ₩ doz 11 50 @ 13 00 net
Elephant... per doz $9 00 @ 10 50 net

Axles.
Common (Guy C. Hotchkiss, Field & Co.)... ₩ lb 4½c
Solid Collar, Case Hardened, Chilled Box... ₩ lb 8c
Axle Grease.—Frazer's... ₩ lb 6c.

Balances.
Light or "Common"... dis 25&10 %
All other Spring Balances... dis 25 %
Bands.—Plated... new list dis 50&5 %
Iron Rim... new list dis 25&5 %
Brass (Plated list)... new list dis 50, 10&5 %
Oroide... new list dis 50&5 %

Bed Keys.
Gray's Ratchet... ₩ doz $4 00, dis 15 %

Bells.
Hand, Light Brass... dis 70&5&10 @ 75 %
" Extra Heavy... dis 40&10 %
" White Metal... dis 50&10 %
" Silver Chime... dis 20&10 %
" Swiss... dis 25 %
" Globe (Cone's Patent)... dis 20&10 %
Gong Abbe's... dis 20&10 %
" Yankee... dis 35&10 %
" Barton's... dis 35 %
Crank, Taylor's... dis 25&10 %
" Brook's... dis 50 %
" Cone's... dis 10 %
" Connel's... dis 50&10 %
Lever, Sargent's... dis 60&10&10 %
" Taylor's Bronze or Plated Lever... net
" " Japanned Lever... dis 25&10 %
" Hart, Bliven & Mead Mfg. Co... dis 30&10 %
Pull. " " " ... dis 50&10 %
" Brook's... dis 50 %
" Western... dis 25&10 %
Call... dis 15 @ 20 %
Cow—Common Wrought... dis 20&10 %
" Western... dis 20&10 %
" Sargent's... dis 60&10 %
Kentucky "Star"... dis 20&10 %
" Sargent's... dis 60&10 %
Dodge's Genuine Kentucky, new list—

Nos.	0	1	1½	2	3	4	5	6	Hog.
	$12·00	10·00	9·00	8·00	6·00	5·00	3·50	2·50	5·00—dis 40 %

Yaw's Genuine... dis 35 %
Texas... dis 40 %

Bellows.
Blacksmiths', Common. List of Sept. 15... dis 25 %
" Extra and Pittsburgh Pattern... dis 10 %
Moulders'... dis 25 %
Hand Bellows... dis 10 %
Blind Adjusters.—Domestic... ₩ doz $3—dis 20 %
Blind Fasteners.
Mackrell's... dis 30 %
Van Sand's... No. 2000, $14·00; dis 25 %
" old pattern... per gross, $10·50, dis 5 %
Washburn's Patent... ₩ gross $14 00 dis 5 %
Merriman's... new list net
Blind Staples.
Boardman's Patent, ⅜ in. and larger... ₩ lb 37 c
" " ⅝ in... " 42 c

Blocks.
Differential Pulley Blocks... dis 30 %
Tackle, Rope and Iron Strapped, Providence Tool Co.'s list... dis 30&10 %
Stanley Rule and Level Co... dis 25&10 %

Blowers.
Keystone Portable Forge Co... dis 20 %

Bolts.
Cast Iron Barrel, Shutter, &c... dis 60&10&10 %
Cast Iron Chain... dis 60&20&10 %
Wrought Iron Barrel... dis 50, 10&10 %
" " Square... dis 50, 10&10 %
" " Shutter... dis 60&10 %
" " Flush, Stanley's... dis 15&10 %
" " " Sargent's... dis 50&10&10 %
Carriage and Tire, Common... dis 75&5 % cash
" " " Norway Iron... dis 50&10 %
" " " R. B. & W... (old list) dis 65&5 %
" " " Philadelphia... dis 60&10 %
" " " Shelton's... (old list) dis 60&20 %
Union Nut Company, old list... dis 65&5 %
Stove—American Screw Co.'s... dis 50 %
" R. B. & W... dis 45 %
" Shelton's Shaved Head... dis 45 %
Plow, R. B. & W... dis 40 %
Machine... dis 65 @ 70 %
Bolt Ends... dis 60

Borax.... 12½ @ 13½c. ₩ lb

Boring Machines.

	Upright.	Angular.
Hovey's, no Augers	$3·15	$4 00 net
" with Augers	5·00	6·00 net
Douglass no Augers	5·50	7·50 dis 40 %
" with Augers	9·00	11·00 dis 40 %
Parr's, no Augers	5·00	7·50 dis 30 %
" with Augers	7·80	10·00 dis 30 %
Kellogg's, no Augers	5·25	6·75 dis 15 %
Sweets' "	3·25	4·00 net
" with Augers	5·00	6·00 net
Snell's "	4·75	6·25 dis 25 %
Phillips' Augers		10·00 dis 25 %

Bow Pins.
Union Nut Co... new list dis 50&10&5 %
Hotchkiss'... dis 50 @ 55 %
Humason, Beckley & Co.'s... dis 60 %
Sargent & Co.'s... $17·00 and $19·00, dis 50&10&10 %

Braces.
Barber's Patent... dis 40&5 %
G. S. Backus... dis 50 %
Wilson Mfg. Co... dis 10 %
Spofford's Patent... dis 50 %
Noble's Patent... dis 40&5 %
Ives' "Centennial"... dis 40&10 %
" "Novelty"... dis 50 %
Common Ball (American)... dis 20&10 %
Brackets.—Shelf... dis 60&10 @ 65&10 %
Bright Wire Goods... dis 65&10&10 %
Bull Rings.—Union Nut Co... dis 50&20 %
Sargent's... dis 60&10 %
Hotchkiss'... 2½ in., $2·25 net
Humason, Beckley & Co.'s... dis 60 %

Butchers' Cleavers.
Humason & Beckley Mfg. Co... dis 20 %
D. R. Barton Tool Co... dis 20 %
Bradley's... dis 25 %
Beatty's... dis 20 %

1	2	3	4	5	6	7	8
$16·50	$19·00	$21·50	$24·00	$27·00	$30·00	$33·50	$36·50

Hart Mfg. Co... dis 50&10 %

0	1	2	3	4	5	6
$27·25	$29·75	$34·25	$38·75	$43·25	$48·50	$54·00

Butts.
Wrought Brass... dis 30 %
Cast Brass... dis 20 %

COMMON CAST, NOT DRILLED. (10 % for cash.)
Fast Joint, Narrow... dis 30&12½ %
" Broad... dis 40&12½ %
" " Jap'd... dis 35&12½ %
Loose Joint, Narrow and Broad... dis 50&12½ %
" " " Jap'd.. dis 45&12½ %
Parliament Butts & Mayer's Hinges.. dis 40&12½ %
Loose Pin... dis 45&12½ %
Loose Pin Japanned... dis 55&12½ %
Loose Pin Jap'd, Plated Tips... dis 50&12½ %

DRILLED AND WIRED. (10 % for cash.)
Fast Joint, Narrow... dis 25&12½ %
" Broad... dis 35&12½ %
Fast Joint, Broad, Japanned... dis 30&12½ %
Loose Joint... dis 45&12½ %
" Japanned... dis 45&12½ %
Parliament & Mayer's Hinges... dis 35&12½ %
Loose Pin, no Acorn... dis 42½&12½ %
" Acorns... dis 40&12½ %
" " Japanned... dis 50&12½ %
" " Plated Tips. dis 45&12½ %
Union Mfg. Co.'s Fancy Butts.—
Figured Enameled Loose Joint... dis 55&10 %
Boston Finish, Plain... dis 80&10 %
" " with Iron Acorns... dis 75&10 %
" " with Sil'd " ... dis 65&10 %

WROUGHT IRON.
Fast Joint, Narrow... dis 40&5 %
" Lt. Narrow... dis 30&5 %
" Broad... dis 40&5 %
Loose Joint, Broad... dis 40&5 %
Table Butts, Back Flaps, &c... dis 35&5 %
Inside Blind, Regular... dis 35&5 %
" " Light... dis 40&5 %
Loose Pin, Wrt... dis 40&5 %
Am. Spiral Spring Butt Co.. list May 1st... dis 25 %
Union Spring Hinge Co... dis 20 %
Union Mfg. Co. Spring Hinges... dis 25 %
Blind Butts, Parker... dis 65&10 @ 70&10 %
" Palmer... dis 40 %
" Seymour... dis 65&10 %
" Shepard... dis 70&10 %
" Lull & Porter... dis 60 %
" Nicholson... dis 45&10 %
" Huffer... dis 33⅓&10 %
" Garretson... dis 60&10 %
" Clark's. Nos. 1, 3 and 5... dis 60&10 %
" Clark's No. 30... dis 70&10 %
" " Nos. 2, 4, 4½, 6, 8, 10... dis 55 %
" Sargent's... dis 70&5&10 %

Can Openers.
Messenger's Comet... per doz $3·00 dis 20 %
American... per doz 2·25 dis 50 %
Lyman's... per doz 3·75 dis 20 %
No. 4, French... per doz 2·25 dis 50 %
No. 5, Iron Handle... per doz 2·25 dis 50 %
Sprague's... Nos. 1, 2, 3, 4 — Per doz $4·00, 4·50, 5·00, 9·00 dis 55&10 %
Star... per doz $5·00 dis 25 %
Eureka... per doz $2·50 dis 10 %
Sardine Scissors... per doz $7·00 dis 40 @ 40&5 %

Caps—Percussion, per 1000.
Hicks & Goldmark's G. D. & S. R... 37 @ 40c
" " E. B. 1-10 Ground... 70c dis 5 %
" " E. B. 1-10 Turned... 65c dis 5 %
" " D. W. P. 1-10... $1·40 dis 5 %
" " D. W. P. ¼... $1·35 dis 5 %
" " Colt's 1-10... 70c dis 5 %
Ely's E. B... 1-4s. 58c.; 1-10s. 70c. gold
" Double Waterproof, 1-4s, $1·50; 1-10s, $1·58c., gold
Colt's... 1-10s. 80c., gold

Carpet Sweepers.
Union... each $2 75 net
Welcome... each 2 75 net
Cartridges.—Metallic... dis 57½ @ 60 %
Cards.—Horse and Curry... dis 30&10 %
Cotton... dis 10&10 %
Wool... dis 15&10 %

Carpet Stretchers.
Cast Steel, Polished... per doz $5·00 dis 30 %
Cast Iron, Steel Points... per doz $2·00 dis 45&5 %

Casters.
Bed... dis 45 @ 50 %
Plate and Shallow Socket... dis 55 %
Deep Socket... dis 40 %

Cattle Leaders.
Hotchkiss' Sons'... net
Humason, Beckley & Co.'s... dis 60 %
Sargent's... dis 60&10 %

Chain
English Coil... net gold

₩ lb	11½	8½	7⅜	7¼	7⅛	7c
	3-16	¼	5-16	⅜	7-16	½

Trace, 6½-10-2... by the cask, ₩ pair, gold 50 @ 52c
Trace, 7-10-2... by the cask, ₩ pair gold. 55 @ 57c
German Halter Chain... dis 25 % gold
German Coil... dis 25 % gold
Galvanized Pump Chain... ₩ lb 10½ @ 11c.
Jack Chain Iron... dis 55&10 %
" Brass... dis 45&10 %

Chalk.
White... ₩ gross, 55c net
Red... ₩ gross, 90c net
Blue... ₩ gross, 1 05c net
White Crayons... ₩ gross, 14½c net

Chisels.
D. R. Barton Tool Co. (all kinds)... dis 20 %
Socket Framing, Douglass, Extra... dis 60&10&10 %
" " Crossman... dis 60&5 %
" " Buck Bros... new list dis 17½ @ 20 %
" " Hart Mfg. Co., No 1... dis 60&10&10 %
" " Merrill... dis 60&10 %
" " Witherby Tool Co... dis 60&10 %
" Firmers, Douglass, Extra... dis 60&10 %
" " Crossman... dis 60 %
" " Buck Bros... new list dis 17½ @ 20 %
" " Hart Mfg. Co., No. 1... dis 60&10 %
" " Merrill... dis 60&10 %
" " Witherby Tool Co... dis 60&10 %
Socket Corner... dis 60&10 %
Tanged Firmers, extra... dis 40 %
" " Butcher's... $5·25 to £ gold
" " Newbould's... $5·50 to £ gold
" " Spear & Jackson's... $5·00 to £ gold
" " Buck Bros (Shank)... $5·25 to £ gold

Clamps.
Iron, Providence Tool Co.'s, Wrt. Iron... dis 25 %
" Adjustable, Gray's... dis 20 %
" " Lambert's... dis 20 %
" " Snow's... dis 40&5 %
" " Hammer's... dis 20 %
" Cabinet, Sargent's... dis 60&10 %
" Carriage Makers', Sargent's... dis 60&10 %

Clips, Axle.
Norway or Best... dis 40 %
Superior... dis 55 %
Cockeyes... 1¼ in., 28c.; 1½ in., 33c.; 1¾ in., 37c. net

Cocks.
Brass Racking... dis 45 %
Lock and Globe... dis 45 %
Lever Bibbs... dis 45 %
Ale and Beer... dis 25&10 %

Coffee Mills.
Board and Box... dis 25 %
Increase Wilson's... dis 25 %
Selsor's Pat... $9·50, $10·50—dis 25 %
American (Enterprise Mfg. Co.)... dis 20 %
French Steel... dis 30 %
The Swift... dis 25 %
Compasses and Dividers... dis 35&10 %
Bemis & Call Co.'s... dis 35&10 %
Cook's... dis 15 %
Excelsior... dis 40 %
Miller's Patent... dis 25&10 %

Coopers' Tools.
Bradley's... dis 15 @ 20 %
Chas. E. Little... dis 20 @ 25 %
D. R. Barton Tool Co... dis 20 %
Corkscrews.—Humason & B... dis 33⅓ %
Corn Knives and Cutters.
Bradley's... dis 10 %

Crow Bars.
Cast Steel... ₩ lb 11c. net
Iron, steel points... ₩ lb 5c
Crucibles.—Gautier & Co... ₩ No. 5¾c
Curling Irons, &c.
⅛, ⅜, ½ in., $1·80, $2·00, $2·40... dis 10 %
Curling Tongs... ₩ doz $6 50—dis 15 %
Pinching Irons... ₩ doz 7 50—dis 20 %

Curry Combs.
Curry Comb Mfg. Co... dis 25&10 %
Hotchkiss' & Kellogg's, Iron & Brass, old list. dis 40&7½ %
Fitch's (List of No. 240, $1)... dis 25&10 %
Rubber... ₩ doz, $9·00—dis 15 %
Wood Tooth (Fuller Bros.)... per doz $2·25 net
Curtain Pins.—Silvered Glass... new list dis 15 %

Cutlery.
Am. Pocket—Humason & Beckley Mfg. Co... dis 25 %
Am. Miller Bro.'s Cutlery Co... dis 25 %
Naugatuck Cutlery Co... list net
Rogers Cutlery Co... net

Dippers.
Britannia... per doz $3·75 @ $4·25 net
Cocoa, Plain... per doz $3·25—dis 30 %
" Rimmed... per doz 3·75—dis 30 %

Dog Collars.
Embossed Gilt... dis 20 %
Leather... dis 30 %
Brass... dis 25 %

Door Springs.
Torrey's Rod... ₩ doz $2·50 net
Gray's "... ₩ doz $2·37 net
Johnson's "... ₩ doz $3·00 net
Gem (Coil)—
No. 1, Large, Japanned... per doz $3·50
No. 2, Medium, "... per doz 2·50 } dis 10 %
No. 3, Small, "... per doz 2·00

Challenge (Coil)— Nos.	5	7	6	
Japanned... per doz	$2·00	2·50	3·50	dis 10 %
Coppered... per doz	4·00	4·50	5·00	
Galvanized... per doz	3·50	4·00	4·50	
Nickeled... per doz	5·50	6·00	7·00	

Premium (Coil)— Nos.	1	2	3	
Japanned... Per doz	$7·50	6·25	5·00	dis 30 %
Nickeled... Per doz	11·00	9·50	8·00	

Philadelphia... 5 in., $5·00; 8 in., $7·00 dis 15 %
Barker's Concealed... dis 15 %

Drawing Knives.
Crossman's No. 1... dis 60&5 %
D. R. Barton Tool Co... dis 20 %
Douglass, Extra... dis 60&10&10 %
Hart Mfg. Co., No. 1... dis 60&10&10 %
Merrill... dis 60&10 %
Nobles Mfg. Co... dis 15 %
Bradley's... dis 25 %
Adjustable Handle... dis 15 %
Witherby Tool Co... dis 60&10 %

Drills and Drill Stocks.
Blacksmiths'... each $2 50 dis 10 %
" Self-Feeding... each $7 50 dis 10 %
Breast, P. S. & W... dis 45 %
Breast, Aiken's... dis 25&10 %
" Hotchkiss... dis 10 %
" Wilson's... dis 10 %
" Miller's Falls... each $2·50, dis 25 %
Ratchet, Merrill's... dis 20 %
" Ingersoll's (old list)... dis 35 %
" Whitney's... dis 20 %
" Weston's... dis 20 %
" Moore's Triple Action... dis 20 @ 25 %
Wilson's Drill Stocks... dis 10 %
Automatic Boring Tools... each $2·75—dis 20 %

Drill Chucks.
Danbury... each $8·00, dis 30 %
Morse's Beach Patent... dis 30 %
" Adjustable... each $10·00, dis 30 %

Egg Beaters.
Monroe's... 8 in. 10 in. Per doz $8·00 9·00... dis 10 %
Dover... ₩ doz $5·00—dis 20 %
National... ₩ doz $4·50—dis 20 %

Emery.
Genuine Chester—Regular Nos... ₩ lb 6c } dis 10 %
" Flour and FF... ₩ lb 4c
Washington Mills—Regular Nos... ₩ lb 8c
" Flour... ₩ lb 5c
Wellington Mills, Grain... ₩ lb 10c. net
" " Flour... ₩ lb 8c. net

Enameled and Tinned Ware.
Kettles... dis 40 @ 50 %
Sauce Pans... dis 30 @ 35 %
Glue Kettles... dis 30 @ 35 %
Tinned Saucepans... dis 30 @ 35 %

Escutcheons.
Door Lock... Same discounts as Door Locks
Brass Thread... dis 60&10 %
Wood... dis 25 %

Faucets.
Fenn's... dis 50 %
" Cork Stops... dis 40 %
Star... dis 55&10 %
Frary's Patent Petroleum... dis 20&10 %
Wood and Metallic... dis 40 %
Wood, Cork Lined... dis 65&10 %
Enterprise Mfg. Co., Self-Measuring... dis 20 %
Felloe Plates... ₩ lb 15c; dis 25&10 %

Files.
American File Co... $5 00 to £ currency—dis 25 @ 30 %
Arcade File Works... $5·00 to £ currency
Auburn File Works... $5 00 to £ currency
C. B. Paul's... $5 00 to £ currency
Heller & Bros... $5 00 to £ currency
Hiscox File Mfg. Co... $5 00 to £ currency, dis 10 %
Johnson & Bro... $5 00 to £ currency
Madden & Cockayne File Co... $5 00 to £ currency
Jowitt's... 4 50 to £ gold
J. & Riley Carr... 5 00 to £ gold
Stubs'... 7 50 to £ gold
Butcher's... 4 50 to £ gold
Walter Spencer & Co.'s "Diamond"... 4 50 to £ gold
Fisher's... 4 75 to £ gold
Moss & Gamble... 4 75 to £ gold
Thos. Turner & Co. (Peter A. Frasse & Co.) 4 50 to £ gold
" " Horse Rasps... 5 00 to £ gold
H. Disston & Sons... dis 30 %
Limet & Co. (French)... 4 25 to £ gold
Boyton's Cant... dis 40 %

Fluting Machines
Mrs. Coles'... 5 in., $6·00; 7 in., $7·00, dis 25 %
" Pony.. 4 in., $4·75; 5 in. $5; 6 in. 5·50; 7 in. $6 dis 25 %
Mrs. Knox, No 1876... each $5·20, dis 20&10 %
Knox, 4 inch Rolls... $3 25 each dis 10 %
" 6 "... 3 80 each dis 10 %
" 8 "... 5 60 each dis 10 %
Peerless, 4-inch Rolls... 4 00 each net
" 5 "... 4 75 each net
Improved Knox (Climax), 4 inch... 2 65 each net
" " " 6 "... 3 15 each net
" " " 8 "... 4 90 each net
Champion, 6 inch rolls... 6 00 each net
" 4 inch rolls... 5 00 each net
Empire... 4 00 each net
Eureka. No. 1, 7-inch Roll... 6 75 each net
" No. 2, 5-inch Roll... 5 00 each net
Defiance... 4 in., $3·50; 6 in., $4·00; 8 in., $6·50 each net
K. F. M., 4½-inch Roll... 3 50 each net
" 6-inch Roll... 4 00 each net
Crown... 4½ in. Roll, $3·00; 6 in., 3·50; 8 in., 4·75 each net
Domestic Fluter... $1·50 each net
Geneva Hand Fluter... $15 00 per doz net
Fluting Scissors... dis 40&5 %

Forges.
"Empire" (W. P. Kellogg & Co.)... dis 20 %
Keystone Portable Forge Co... dis 20 %

Forks.
Hay, Manure & Spading... dis 35 %
Plated A 1... dis 40&5 %
" Reed & Barton... dis 40&5 %

Fruit and Jelly Presses.
Enterprise Mfg. Co... dis 20 %

Fry Pans.
Burnished, P. S. & W., new list... dis 55 %

₩ doz	$3·00	3·75	4·25	4·75	5·25	6·00	7·00	8·00	9·00
No.	0	1	2	3	4	5	6	7	8

Gauges.
Marking... dis 45&10 %
" Star... dis 35 %
Wire... dis 10 %
" Smith's Patent... per doz $18·00, dis 40 %

Gimlets.
Nail and Spike... dis 33⅓&40 %
"Bee" Gimlets... per gross, $12·00, dis 45 %
Double Cut, Shepardson's... dis 20 %
" " Hartwell's... dis 40 %
" " Ives'... dis 25 %
" " Douglass'... dis 25&10 %

Glue Pots.
Tinned and Enameled... dis 35 %
Family, Howe's "Eureka"... dis 25 %
" L. F. & C.'s "Handy"... dis 25 %

Grind Stone Fixtures
Sargent's Patent... dis 70&10 %
Reading Hardware Co... dis 70&10 %
Hart Mfg. Co.'s... dis 60&5&10 %
Rice Bros... dis 45&5 %

Hammers.
Emmet Hammer Co.'s Handled... dis 25 %
" " Sledge & Stone. ₩ lb 40c.; dis 40 %
Humason & Beckley Mfg. Co... dis 33⅓ %
Maydole's... New List, Jan. 1, '77, dis 15 %
Henry Hammonds'... new list Jan. 1, 1877, dis 15 %
Cheney's... dis 5 @ 7½ %
Verree... dis 40 %
Magnetic Tack... dis 25&10 %
Warner & Noble's... dis 20 %

Hand Cuffs and Leg Irons.
Tower's Hand Cuffs, $4 00 per pair... } dis 25 %
" Leg Irons $6 50 per pair...
Providence Tool Co.'s Hand Cuffs.. $15 per doz } dis 10 %
" Leg Irons... 25 "

Handles.
Door or Thumb Latches—

Nos.	0	1	2	3	4
Per doz	$0·80	1·00	1·18	1·35	1·50—dis 60&10 %

Roggin's Latches... 35c. @ 40c. net
Bronzed Iron Drop Latches... per doz $1·00 @ 1·25 net
Wrought Chest... dis 60&10 %
Surface Chest... dis 65&10&10 %
Flush Chest... dis 60&10&10 %
Lifting... dis 60&10 %
Saw and Plane... dis 25&10 %
Boynton's X Cut (Loop)... dis 20 %
" X Cut (Centennial)... dis 15 %
Hammer and Hatchet... dis 10 %
N. Carolina Handle Co... dis 15 %
Brad Awl... per gross $3 00, dis 10 %
Hickory Firmer Chisel, ass'td... 5 25
" " " large... 6 50
Apple " " ass'td... 6 00
" " " large... 7 50
Socket " " ass'td... 4 50 } dis 40 %
" Framing "... 7 00
File... 3 50
Auger... 6 50
" large... 8 00
Patent Auger, Ives'... dis 25&10 %
" " Douglass'... per set $1 25—dis 10 %
" " Swan's... per set $1 00—dis 20&10 %
Hangers.—Barn Door... dis 65&10 %
"Anti-Friction" No. 1, $1·25; No. 2, $1·50 ₩ pr... dis 40 %
Novelty... dis 40 %
Challenge... dis 40 %
Climax... dis 40 %

Harness Snaps.
Henshaw's... List of 1½ changed to $14·00, dis 42½ @ 45 %
Judd's... " " 14·00, dis 42½ @ 45 %
Fitch's (Bristol) " " 14·00, dis 42½ @ 45 %
Hotchkiss'... dis 10 %
Andrews'... dis 25 %
Sargent's... dis 60&10 %
New York Wire... dis 20&20 %

Hatchets. Isaiah Blood... dis 15 %

	Nos.				
Shingling, Nos. 1 2 3	₩ doz	$7 25	8 00	8 75
Claw, " 1 2 3	₩ doz	7 75	8 50	9 25
Lathing, " 1 2 3	₩ doz	7 50	8 00	8 50
Hunt's...				dis 25 %
Shingling, Nos. 1 2 3	₩ doz	$7 25	8 00	8 75
Claw, " 1 2 3	₩ doz	7 75	8 50	9 25
Lathing, " 1 2 3	₩ doz	7 50	8 25	9 00
Hurd's...				dis 30&5 %
Shingling, Nos. 1 2 3	₩ doz	$8 00	8 50	9 00
Claw, " 1 2 3	₩ doz	9 00	9 50	10 00
Lathing, " 1 2 3	₩ doz	8 00	8 50	9 00
Newark's Edge Tool Co.'s...				dis 25 %
Shingling, Nos. 1 2 3	₩ doz	$6 50	7 00	7 50
Claw, " 1 2 3	₩ doz	7 25	7 75	8 25
Lathing, " 1 2 3	₩ doz	6 50	7 00	7 50

Simmon's... dis 25 %

Shingling, Nos. 0 1 2 3	₩ doz $7 50	8 00	8 50	9 00
Claw, " 1 2 3	₩ doz	9 00	9 50	10 00
Lathing, " 1 2 3	₩ doz	8 00	8 50	9 00
Broad, " 1 2 3	₩ doz	9 00	10 00	12 00
" " 4 5 6	₩ doz	14 00	16 00	18 00
" " 7 8	₩ doz	20 00	22 00	

D. R. Barton Tool Co... dis 20 %

Shingling, Nos. 1 2 3	₩ doz $11 00	10 50	10 00
Lath, " 1 2 3	₩ doz 10 50	10 00	9 50
Half Hatchets, Nos. 1 2 3	₩ doz 11 00	10 50	10 00

J. P. Verree & Co... dis 5 %

Shingling, Nos. 1 2 3	₩ doz $7 00	7 50	8 00
Claw, " 1 2 3	₩ doz 7 50	8 00	8 50
Lathing, " 1 2 3	₩ doz 7 00	7 50	8 00

Underhill's... dis 20 %

Shingling, Nos. 1 2 3	₩ doz 7 25	8 00	8 75
Claw, " 1 2 3	₩ doz 7 75	8 50	9 25
Lathing, " 1 2 3	₩ doz 12 00	11 00	13 00

M. H. Jones & Co... dis 25 %

Shingling, Nos. 1 2 3	₩ doz $8 00	8 50	9 00
Half Hatchets, Nos. 1 2 3	₩ doz 8 00	8 50	9 00
Claw, Nos. 1 2 3	₩ doz 9 00	9 50	10 00
Lathing, " 1 2 3	₩ doz 8 00	8 50	9 00
Broad, " 2 3 4	₩ doz 11 00	13 00	14 50
" " 5 6 7	₩ doz 16 50	18 00	19 50

Empire Hatchets, M. H. Jones & Co... net

Shingling, Nos. 1 2 3	₩ doz $4 75	5 00	5 25
Lath, " 1 2 3	₩ doz 4 75	5 00	5 25
Half Hatchets. Nos. 1 2 3	₩ doz 4 75	5 00	5 25
All pol. Sh'gling " 1 2 3	₩ doz 5 25	5 50	5 75
Solid Steel Lath " 1 2 3	₩ doz 7 25	7 50	7 75

Hay Knives.—"Lightning"... per doz $30·00 net
Wadsworth's... dis 33⅓ %

Hinges.
Gate, Western... ₩ doz $6·25—dis 60&10 %
" N. E... ₩ doz 11·25—dis 60&10&10 %
" N. Y. State... ₩ doz 7·20—dis 60&10 %
Rolled Plate... dis 65&10 %
Rolled Raised... dis 65&10 %
Wrought Strap and T... dis 60&5 %
Providence Plate. { 6 to 10 in. 11c ₩ lb; over 10 in. 9¾c ₩ lb }... dis 40&10 %
Screw Hook and Strap... { 6, 10, 12 in. 11 c; 14 to 36 in. 9½c } dis 40&10 %
Heavy Welded Hook... { 8 to 12 in., 11 c; 14 in. & up, 9½c } dis 30 @ 40 %
Screw Hook and Eye... { ⅝ to 1 in., 8½c; ½ in. 9½c; ⅜ in. 11½c }... net

Hoes.
Solid Shank, C. S... ₩ doz $8 00—dis 35 %
Socket... ₩ doz 9 00—dis 35 %
Riveted Eye... ₩ doz 5 00—dis 30 %
Grub... dis 25 %
Planters... dis 30 %
Scovill Pattern... dis 25 %

Hooks.
Bird Cage... dis 60&10 @ 70&10 %
Cotton... dis 50 %
Belt... dis 60&10 %
Bench—Hotchkiss' $5 00 ₩ doz... dis 10 %
" Weston's No. 1, $8·00; No. 2, $7·00 per doz net
" McGill's... $3 00 per doz, dis 10 %
" Skinner's... per doz $6·25, dis 20 %
Clothes Line, Hart's list... dis 60&10&5&10 %
" " Sargent's list... dis 60&10&10 %
" " Reading list... dis 33⅓&5&10 %
Ceiling.. { Hart's list... dis 60&10&10 %
Harness. { Sargent's list... dis 60&5&10 %
{ Reading list... dis 40&10 %
Coat and Hat, Hart's list... dis 60&10&10 %
" " Sargent's list... dis 60&10&10 %
" " Reading... dis 40&10 %
Wrought Staples and Hooks and Staples... dis 75 %
" " Stanley's list... dis 40 %
Wire Screw Hooks and Eyes... dis 65&10&10 %
Grass... dis 25 %
Whiffletree—Patent... dis 45 %
Hooks and Eyes—Malleable Iron... dis 60&10&10 %
" " Brass... dis 60&10&10 %

Horse Nails.

	Nos.	5	6	7	8	9	10
Ausable	₩ lb	30c	27c	25c	24c	23c	22c
" P't'd & Pol'd..	"	31c	28c	26c	25c	24c	23c
" " & Blued..	"	31c	28c	26c	25c	24c	23c
Cortland	"	29c	26c	24c	23c	22c	21c
Buffalo Forged	"	31c	28c	26c	25c	24c	23c
Globe, P't'd & Pol'd	"	31c	28c	26c	25c	24c	23c
National, Pointed and Polished, Pat. Fin.	"	28c	25c	23c	22c	21c	20c
National, Pointed and Polished. Ex. Fin.	"	30c	27c	25c	24c	23c	22c
Perkin's P't'd—Black.	"	26c	23c	21c	20c	19c	18c
Perkins' Pointed and Polished	"	27c	24c	22c	21c	20c	19c
Perkins' Pointed and Blued	"	27c	24c	22c	21c	20c	19c
Putnam Hammer P't'd	"	32c	28c	26c	25c	24c	23c
Vulcan, P't'd & Blued.	"	31c	28c	26c	25c	24c	23c

Star brand, 16c.; Morgan... 14c
Putnam... 500 lbs., dis 5 %
Ausable. National and New London... 1000 lbs., dis 5 %
Perkins' and Vulcan... 1000 lbs., dis 7½ %
Perkins', Vulcan and Globe... 500 lbs., dis 5 %

Horse Shoes.
Burden... ₩ keg, $4·62½
R. I. Horse Shoe Co., Perkins' improved Light, Med. and Heavy... ₩ keg, 4·62½
Mule Shoes... ₩ keg, 5·62½
Perkins' Snow... ₩ keg, 5·62½
The Boston Horse Shoe... per keg $5·00
Boston Rolling Mills Hand Made... ₩ lb 8c

Ice Awls, Chisels, &c.
American Ice Chisel... per doz $6·50 net
National " "... per doz $6·50, dis 10 %
Novelty Ice Breakers... per doz $6·50, net
White's Sliding Head Picks... per doz $2·25, net
Dunlap's Ring Picks... per doz $3·00, dis 2½ %
Wood Head Picks, Sargent's... per doz $1·85, dis 60&10 %
Iron " " "... per doz $1·85, dis 60&10 %
Ice Mallets, Pick in Head... per doz $1·75 net
" " Pick in Handle... per doz $3·00 net
Ice Axes Small, Cast or Malleable... per doz $1·50 net

Kettles.
Brass... ₩ lb 45c net
Enameled... dis 40 @ 50 %

Knives.
Ames' Butcher Knives... dis 20 %
" Shoe "... dis 15 %
" Bread... ₩ doz $1·50—dis 15 %
Hay and Straw, "Wadsworth's"... dis 33⅓ %
Table and Pocket... See Cutlery

Knobs.
Carriage (Jap'd 80 cents per gross)... dis 60&10 %
Base—Common... dis 50&10 %
" Plush Tip... dis 10 %
" Elastic End, No. 8... dis 60&5 %
Door, Mineral... ₩ doz $1·75
" Por. Jap'd... ₩ doz 2·25 } ... dis 35 %
" " Plated... ₩ doz 6·25 } & 2 % for cash
" " Por... ₩ doz 6·75
Furniture, Plain... 75c gross inch, dis 10 %
" Wood Screws... dis 20 %

Ladles.
Melting, Hart's... dis 55&10 %
" Sargent's... dis 50&10 %
" Reading... dis 15&10 %
" Monroe's Patent... per doz $4·00 dis 20 %

Lanterns.
Tubular... No. 0, $11·00; No. 1, $14·00 } dis 5 @ 10 %
With Guards, 50c. extra
Peerless... No. 5, per doz $11·75—dis 10&10 %
Brady's Patent... dis 10&10 %
Ætna... dis 10 & 10 %
Yankee... dis 10 & 10 %
De Beque... dis 10 & 10 %
Police... small, $7·50; large, $9·00, dis 5 %

Lard Presses.
Draw Cut, 14 inch... each $65 00—dis 20 %
Enterprise Mfg. Co... dis 20 %

Lemon Squeezers.
Porcelain Lined... per doz $7 00, dis 15 %
Eureka, Tinned... per doz, $10·00 dis 10 %
Dunlap's Improved... per doz $6·00 net

Lines.
Linen Fish... dis 20 %
Cotton Chalk... dis 50 %
Sil. Lake Chalk... Nos. 0, 1, 2, 3, $6, 6·50, 7, 7·50, dis 20 %
Mason's... dis 20 %
Wire Clothes, Gal'd... each 50c. net

Locks and Latches.
Cabinet—Gaylord; " Eagle... dis 25&5&2 %
Trunk... dis 25 %
Langstroth & Crane's, List Jan. 1, '77.
Round Key... dis 40&10 %
Flat Key... dis 33⅓&10 %
Barnes & Deitz, Flat Key... dis 25 @ 30 %
Yale Lock Co., Flat Key... dis 40 %
Sargent & Greenleaf, Flat Key... dis 20 %
Continental... dis 25 %
Shepardson's, Flat Key... dis 35 %
American Lock Mfg. Co... dis 33⅓ %
Plate... new list dis 33⅓&2 %
Trenton; Branford; Norwich; Russell & Erwin; Norwalk; Nashua; Mallory, Wheeler & Co; P. & F. Corbin; Parker & Whipple; Jacobus & Nimick Mfg. Co... List of Jan. 1, 1877... dis 35 %... and 2 % for cash
Padlocks, Russell & Erwin; " Mallory, Wheeler & Co; " Wm. Wilcox & Co... dis 33⅓&5 %... and 2 % for cash
" American Lock Mfg. Co... dis 33⅓ %
" Romer's... dis 15 %
" Vulcan Hardware Co... dis 20 %
" New York Lock Co... dis 20 %
" J. H. McWilliams... dis 5 @ 10 %
" Barnes & Deitz... dis 30 %
" Miller's Patent... dis 40 %
" Penn Lock Works... dis 25 %
" " " " (Scandinavian)... dis 50 %

Mallets.—Hickory and Lignumvitæ... dis 20 %

Meat Cutters.
Dixon's (P. S. & W.) Nos. 1, 2, 3, 4 — ₩ doz. $14 00, $17 00, $19 00, $30 00 dis 25 %
Miles Challenge... Nos 1, 2, 3 — ₩ doz. $22·00, $30·00, $40 00—dis 30 %
Perry's... Nos. 1, 2, 3, 4, 4 g'rd, 5 g'rd — Each $3·00, $4·00, $5·00, $11·00, $13·00, $36·00—dis 40 %
Woodruff's (P. S. & W.)... Nos. 100, 150 — ₩ doz. $15·00, $18·00—dis 25 %
Hales'... Nos. 11, 12, 13 — ₩ doz. $27·00, $33·00, $42·00—dis 40&2 %
Draw Cut.. Nos. 5, 2, 6, 8, 10 — Each $60·00, $75.00, $80·00, $225 00, $400·00—dis 20 %
American... dis 25 %

No.	1	2	2½	3	4	B	5
Each	$5·00	$7·50	$10·00	$12·00	$25·00	$50·00	$60·00

Molasses Gates.
Stebbins' Pattern... dis 62½&10 %
" Genuine... dis 60&10 %
" Tinned ends... dis 40&10 %
Bush's... dis 20 %
Lincoln's... dis 50&10 %
Weed's... dis 15 %

Mortars and Pestles.
Iron... net
Mortising Machines... each $30·00, dis 20 %

Nail Pullers.
Taft's... per doz $24·00 net

Nails.... See Trade Report

Nuts and Washers.
Square and Hex., New List March 1, '76... 7 @ 7½c off list

Oakum.
Best... ₩ lb 10c
U. S. Navy... ₩ lb 8½c
Navy... ₩ lb 7½c

Oilers.
Miller's Zinc, Brass and Copper... dis 45 %
Sheet Metal Screw, Zinc. Brass and Copper... dis 45 %
Olmsted's... dis 35 %
Broughton's... dis 25&10 %
Malleable... per doz $5 00 dis 10 %
Prior's Patent or "Paragon"... dis 45 %

Ox Balls... dis 60&10 %

Pencils
Faber's Carpenters'... net
" Round Gilt... ₩ gross $6 00 net
Dixon's Lead... ₩ gross $4·50 net
" Lumber... ₩ gross 9·00 net

Picture Cord (Wire).
Tinned (Williams, White & Churchill)... dis 30 %
Lacquered " " "... dis 30 %
Gold Plated "... dis 70 %

Picture Nails and Knobs.
Brass Head...
Porcelain Head...
Richards' Patent...
Judd's...
Pinking Irons... per doz $2 75—dis 65&10 %

Planes and Plane Irons.
First Quality... dis 35 @ 30&10 %
Second Quality... dis 50 %
Bailey's Patent Adjustable, new list Jan. '77. dis 25&10 %
Bailey's "Victor" " "... dis 25&10 %
Defiance Adjustable, new list... dis 25 %
D. R. Barton Tool Co... dis 20 %
Sandusky... dis 35 %
Ohio Tool Co... dis 35 %
Plane Irons, Butcher's... $5 56 to £ gold—new list
" Buck Bros... $5 25 to £ gold
" Bailey's Patent... dis 25&10 %
" Auburn Tool Co.'s... dis 25 %
" Greenfield Tool Co... net list
Plane Irons, Defiance... new list dis 25 %
" D. R. Barton Tool Co... dis 20 %
" Middletown Tool Co... net list
" Ohio Tool Co... dis 10 %
" Spear & Jackson's... 5 00 to £ gold
" Sandusky Tool Co... dis 10 %
Plow Bits, Greenfield Tool Co... dis 10 %

Pliers and Nippers.
Button's Patent... dis 33⅓ %
Hull's Patent Nippers.. No. 1, $15; No. 2, $21 ₩ doz dis 25 %
Leach's Patent Wire Cutters... per doz $6 50—dis 15 %
Gas Pliers... dis 25 %
Eureka Pliers and Nippers... dis 25 %

Plumbs and Levels.
Stanley R. & L. Co.'s Pat. Adjustable... dis 60&10 %
" " " Non-Adjustable... dis 60&10 %
Chapin's... dis 60&10 %
Standard Rule Co.'s New Adjustable... dis 60&10 %
Standard Rule Co.'s Non-Adjustable... dis 60&10 %
Johnson's Patent Adjustable... dis 60&10 %
Davis' Patent... dis 60&10 %
Pocket Levels... dis 60&10 %

Pulleys.
Judd's Axle... per doz $0·75 dis 40 %
Hot House and Tackle... dis 60&10 %
Jap'd Screw... dis 60&10 %
Brass Screw... dis 60&10 %
Jap'd Side... dis 60&10 %
" Clothes Line... dis 60&10 %
Hay Fork... per doz $4 50 @ 5 00, dis 10 %

Pumps.
Douglas Cistern, etc... new list dis
" S. & F... new list dis
Union Mfg. Co's. Cistern and Pitcher... dis 35 %
" " " Rams... dis 25 %
" " " Garden Engines... dis 20 %

Punches.
Belt or Drive... per doz $2·00; $2·25; $2·50 dis 30 %
Spring... per doz $6 50 —dis 25&10 %
" Leach's Patent... dis 15 %
" Bemis'... dis 20 %

Rail.
Sliding Door, Wrought Brass... ₩ lb 40c. net
" " Iron, Painted... ₩ foot 9c—dis 55&10 %
Barn Door, ⅜, ⅝ and ¾ inch... dis 65&10 %
" " for N. E. Hangers... dis 65&10 %

Rakes.
Cast Steel... dis 35 %

$8 00	9 00	10 00	11 00
8	10	12	14 teeth.

Malleable... dis 40 %

$5 00	5 50	6 00	6 50
9	11	13	15 teeth.

Razor Straps.
Evan's... dis 40 %
Imitation Emerson... ₩ doz $2·75—dis 40 %
Hunt's... dis 40 %
Chapman... dis 10 @ 15 %
Torrey's... dis 10&10 %
Saunder's... net @ 10 %

Rivets.
Iron and Tinned... dis 65 %
In bulk... dis 50 %
Copper Rivets and Burrs... dis 10 %

Nos.	7	8	9	10	11	12	13	14	15
Per lb.	49c	50c	52c	54c	56c	58c	60c	65c	70c

Rivet Sets... dis 10 %
Road and Levee Scrapers.
Doty's Revolving... dis 25 %

Rods.
Stair... dis 40&10 %
" American Patent... dis 33⅓ %

Rollers.
Barn Door... revised list dis 65&10 %
Novelty... dis 10 %
Acme (Anti-friction)... dis 40 %

Rope. Manufacturers' List of Jan. 11, 1877
Manila... ½ inch and larger ₩ lb 15 c
" ... ⅜ inch ₩ lb 15½c
" ... ¼ and 5-16 inch ₩ lb 16 c
" Tar'd Rope... ₩ lb 14½c
" Tarrd Lath Yarn... ₩ lb 16 c
" Hay Rope... ₩ lb 15 c
Sisal... ½ inch and larger ₩ lb 11 c
" ... ⅜ inch ₩ lb 11½c
Sisal... ¼ and 5-16 inch ₩ lb 12 c
" Hay Rope... ₩ lb 11 c

Rules.

	Boxwood.	Ivory.
Chapin's	dis 55&10 %	dis 45&10 %
Stanley	dis 55&10 %	dis 45&10 %
Standard	dis 55&10 %	dis 45&10 %
Stephens'	dis 55&10 %	dis 45&10 %
Willis, Thrall & Son	dis 55&10 %	dis 45&10 %

Sad Irons.
From 4 to 10 lbs... ₩ lb 3 @ 3½c net
Sad Iron, Nickel Stand attached... ₩ lb 9c
Self-Heating... per doz $9·38 @ 9·50 net
" " Tailors... per doz $13·75 net
Mrs. Potts... dis 20 %

Sand Paper.
Beader & Adamson's Flint, 00 to 1½... $4 25 ₩ ream
" " " 2, 2½ & 3. 4 75 "
" " " Assorted. 4 25 " } dis 15 %
" " Star... ₩ ream $3 25
" " Emery... ₩ ream $6 50 @ 11 50
New England, same list as B. & A. Flint... dis 15 %
H. B. & M. Roman Flint " " "... dis 15&5 %

Sash Cord.
Common... ₩ lb 16 @ 18c. net
Patent... ₩ lb 24c. net
Silver Lake, Russia Flax... ₩ lb 55c
" " White Cotton... ₩ lb 55c } net
" " Drab Cotton... ₩ lb 60c
Raw Hide... dis 25 %

Sash Locks.
Clark's. Nos. 1, $10·00; No. 2, $8·00 per gross... dis 33⅓ %
Ferguson's... dis 33⅓ %
Norwich... dis 25 %
Walker's... dis 10 %
New England... dis 20 %
Hammond's Window Springs... dis 25 %
Sash Weights.—Solid Eyes... ₩ lb 1½c
Sausage Stuffers or Fillers.
Miles... ₩ doz $20—dis 30 %
Perry... ₩ doz No. 11, $15; No. 10, $21—dis 30 %
Draw Cut No. 4... each $30 00—dis 20 %
Enterprise Mfg. Co... dis 20 %
Silver's... dis 25 %
Saw Frames... per gross $18 00—dis 15&10 %
Saw Rods... $10 list, dis 10&10 %

Saws.
Spear & Jackson's... $3 50 to £ gold
Disston's Circular... dis 25 %
" Mill... dis 30 %
" Cross Cut... dis 20 %
" Hand, Panel, Rip, &c... dis 20 %
H. W. Peace's Circulars... dis 25 %
" Mill, Gang and Mulay... dis 25 %
" Cross Cut, Wood, Hand. &c... dis 20 %
E. M. Boynton's Lightning, Cross Cuts... dis 50&5 %
" " One-Man, all lengths... dis 40&5 %
" " Buck Saws (X Bar). ₩ doz $15, dis 40&10 %
" " Billet Webs... per doz $10, dis 40&5 %
" " Pruning... dis 40 %
(... 2 % for cash)
Wheeler & Clemson Mfg. Co.'s Hand... dis 15 %
" " " " Cross-Cut... dis 30 %
Livingston's Butcher and Kitchen... dis 15 %
Livingston's Framed Wood—

Nos.	101	102	103	104	105	106	
Per doz	$12·00	10·00	12·00	9·00	8·00	6·00	dis 10 %

Saw Sets.
Boynton's Patent... dis 40 %
Stillman's Genuine... ₩ doz $4·50—dis 5 %
" Imitation... ₩ doz 3·25—dis 25 %
Common Lever... per doz $2·00 dis 25 %
Leach's... No. 0, $8·00; No. 1, $15·00 dis 15 %
Nash's... No. 1, $8·50; No. 2, $5·50 dis 20&10 %
Hammer, Hotchkiss... $5·50 dis 10 %
" Bemis & Call's... dis 20 %
" Aiken's Genuine... $13·00 dis 33⅓&10 %
" " Imitation... $7·00 dis 25&10 %

Scales.
Hatch, Counter... ₩ doz $36—dis 25 %
" Tea... ₩ doz $15—dis 40 %
Union Platform... $6·00, $7·00—dis 40 %
Turnbull's... dis 15 @ 20 %
Brown's... dis 25&5 %
Fairbanks'... dis 30&5 %
Howe's... dis 30&5 %
Chatillon's Grocers'... dis 25 %
" Eureka... dis 30 %
Universal Family... dis 25 %
Scale Beams.
No. 1 300 to 1200 lbs... 90c ₩ cwt } dis... 40 %
No. 2 " "... 75c ₩ cwt

Scrapers.
Box, 1 Handle... per doz $5·00, dis 10 %
" 2 "... per doz 6·00, dis 10 %
Defiance Box and Ship... dis 25 %
Foot... dis 60 & 10 %
Ship (common)... per doz $3 00 net
Ship—Providence Tool Co... dis 10 %

Screw Drivers.
Hart, Bliven & Mead... dis 35&10 %
Douglass Mfg. Co... dis 25&10 %
" " No. 1... dis 20&10 %
Disston's... dis 45 %
Stanley Rule & Level Co., No. 1... dis 35&10 %
" " " No. 2... dis 45&10 %

Screws.
Flat H'd Iron, list Sept. 1, '75, R.&E. Mfg. Co... dis 60 %
" " " " Am. Sc. Co... dis 60 %
Round Head Iron " " "... dis 50 %
Flat Head Brass " " "... dis 55 %
Round Head Brass " " "... dis 40 %
Brass and Silver Capped. List March 1, '75... dis 40 %
Lag or Common Coach, New List March 1, '76... dis 65 %
Coach, Patent Gimlet Point, List Jan. 1, 1875... dis 50 %
Bed... dis 5 @ 10 %
Japanned, List of Plain Screws... dis 35 %
Machine—Flat Head, Iron, Am. Screw Co... dis 10 %
" Round Head, Iron, " "... 30 %

Nettlefold's Brass.......dis 60 @ 60&5 %
Bench—Iron.......dis 60, 10&10 %
" —Wood, Beach.......℘ doz $3·00 net
" " Hickory.......dis 20&10 %
Hand.......dis 25&10 %
Hand Rail, Sargent's.......dis 55&10 %
" " Humason, Beckley & Co.'s.......dis 40&5 %
Jack—Bell Bottom.......dis 15 %

Scythes
Blood's German Steel, Grass....℘ doz $10 00 } dis $1·50 from list
" Cast " " ....℘ doz 11 00
" Silver " " ....℘ doz 12 00
" German " Grain ....℘ doz 14 00
" Cast " " ....℘ doz 15 00
Blood's Excelsior and Granger...℘ doz 11 00 } dis $1·50 from list.
" Young America.......10 50
" Silver Clipper.......13 00
Wadsworth's Grass.......dis 30 %
" Bush.......dis 20 %
Scythe Snaths.......dis 20 %

Shears and Scissors.
Cast Steel.......dis 75&10 %
Cast Iron.......dis 40 %
Seymour's Straight Trimmers.......dis 60&10 %
" Scissors.......dis 50 %
Pruning.......per doz $5·50 @ 6·00, net
Barnard's Lamp Trimmers.......per doz $3·75

Sheaves.
Sliding Door, M. W. & Co. list.......dis 35&2 %
" R. & E. list.......dis 50&5&2 %
" Patent Roller.......dis 25&2 %
" " " Hatfield's.......dis 50&2 %
Russell's Anti-Friction.......dis 50&2 %
Sliding Shutter, R. & E. List.......dis 50&5&2 %
" " Sargent's List.......dis 55&10 %
Moore's Anti-friction.......dis 33⅓ %

Shovels and Spades.
Ames.......dis 35 %
Rowland's.......dis 30 %
Old Colony.......dis 30 %
Middleboro' Shovel Co.......dis 30 %
Dunning's Shovels and Scoops.......dis 30&7½ %

Shovels and Tongs.
Iron and Brass Head, R. & E. list.......dis 50&10&2 %
" " Har.'s.......dis 55&2&10 %
Polished Steel.......dis 50&10&2 %

Slates.
Square Frames, Round Cornered, by case.......dis 70 %
Less than a case.......dis 65&10 %
Spokes.—North Carolina Handle Co.......dis 20 %

Spoke Shaves.
Defiance Metallic.......new list dis 25 %
Iron.......dis 33⅓&10 %
Wood.......dis 30 %
Bailey's.......dis 25&10 %

Spoke Trimmers.
Bonney's.......per doz $10·00 dis 40 %
Stearn's.......per doz $10·00 dis 40 %
Ives'.......No. 1, $15·00; No. 2, $12·00 ℘ doz, dis 33⅓&10 %
Douglass'.......per doz $9·00 dis 20&10 %

Spoons.
Tinned Iron.......dis 10 %
By the case.......dis 20 %
Basting.......dis 15 %
Britannia.......dis 55 @ 60 %
" Boardman's, new list.......dis 55 %
Rogers & Bro., A 1.......dis 40&5 %
Reed & Barton.......dis 40&5 %
Rogers Cutlery Co.......dis 50 %
Derby Silver Co.......dis 40&5 %
Holmes, Booth & Haydens.......dis 40&5 %
Nickel Silver Co.......dis 30 %
German Silver.......dis 25 %
Tin (P. S. & W.)—
Teas.......$1·50 ℘ gross, net
Tables.......2·75 " net
Tin (Cowles Hdw. Co.).......dis 10 %
" " case lots.......dis 20 %

Stencil Combinations.—Stafford Mfg. Co.—

Inch	½	⅝	1	1¼	1½	2	2½
Per doz	$6·00	6·50	7·00	9·00	10·00	13·00	18·00

Stocks and Dies.......dis 5&10 %

Stone.
Hindostan Stone.......℘ ℔ 6c } dis 30 %
" Axe Stone.......℘ ℔ 8c
" Slips.......℘ ℔ 10c
Sand Stone.......℘ ℔ 6c—dis 30 %
Washita Stone.......No. 1, ℘ ℔ 30c net
".......No. 2, ℘ ℔ 25c net
" Slips.......No. 1, ℘ ℔ 60c net
Arkansas Stone.......No. 1, ℘ ℔ $1·35 net
" Slips.......No. 1 ℘ ℔ $2·50 net
Grindstones, Family, Loring's.......dis 10 %

Stove Polish.
Joseph Dixon's.......℘ gross, $6·00 dis 5 %
Gem.......℘ gross $4·50 dis 5 %
Gold Medal.......℘ gross $6 00 dis 25 %
Rising Sun.......per gross $5·75 net

Squares.
Steel.......dis 50 %; full cases, dis 50&10 %
Iron.......dis 50 %; full cases, dis 50&10 %
Nickel Plated.......add $2 50 @ $4 00 ℘ doz net
Try Squares and T Bevels.......dis 45&10 %
Star Try Squares and Bevels.......dis 35 %
Disston's Try Squares No. 1.......dis 30 %
" " No. 2.......dis 45 %
" " Improved, Nos. 1 & 2.......dis 30 %
Winterbottom's Try and Mitre.......dis 20&10 %

Tacks, Brads, &c.—List of January 1, 1876.
Tacks, Half Weight, American.......dis 75& } dis 10 % for cash
" Full " ".......dis 50&
" Half " Swedes.......dis 65&
" Full " ".......dis 30&
" Carpet, Am. and Swedes.......dis 10&
" " Leather Head.......dis 10&
" Copper.......℘ ℔ 45c. dis
Brads, Half Weight.......dis 50&
Shoe Nails—
4-8ths and longer, 9c.; 3½-8ths, 9½c. ℘ ℔, dis 10 %
Trunk, Clout and Finishing Nails—

⅜	⅝	¾	⅞	1	1⅛ in. and over.
25	21	17	15	13	11c. ℘ ℔, dis 10 %

Double Pointed Tacks.......dis 40&5 %

Tap Borers.
Common and Ring.......dis 20&10 %
Ives' Tap Borers.......dis 10&10 @ 25 %
Enterprise Mfg Co.......dis 20 %

Tapes, Measuring.
American Flask and Cap Co.......dis 20 %
Eddy's.......dis 20 %

Tea Trays.
American Tea Tray Co.......dis 15 %

Thermometers.
Tin Case.......dis 60&5 %

Toe Calks.
Winsted.......℘ ℔ 10c., dis 5 @ 7½ %

Tobacco Cutters.
Enterprise Mfg. Co. (Champion).......dis 20 %
Wood Bottom.......per doz $12—dis 30&10 %
All Iron.......per doz $19·50—dis 40&5 %
Nashua Lock Co.'s.......per doz $18 00—dis 50 %

Tinners' Tools and Machines.
P. S. & W.......dis 10 %

Traps.
Game, Newhouse.......dis 25&2 %
" Peck, Stow & Wilcox.......dis 45 %
" Hotchkiss.......old list dis 40 %
" Blake's Patent.......dis 40 %
Mouse, Wood Choker.......℘ doz holes, 15 @ 16c
" Patent Choker (Union Nut Co.).......℘ doz holes 16 @ 18c net
" Round, Wire.......℘ doz $1 50 to 2 00 net
" Square, ".......℘ doz 2 00 to 2 50 net
" Cage, ".......℘ doz 2 50, dis 10 %
" Patent Self Setting.......per doz holes 25c net
" Catch-em-alive.......℘ doz $4·00 net

Trowels.
Lothrop's Brick and Plastering.......dis 10 %
Disston's Brick and Plastering.......dis 20 %
Peace's Plastering.......dis 20 %
Rose's Brick.......dis 5 %
Brades' Brick.......gold, dis 10 %
Worrall's Brick and Plastering.......dis 25 %
Garden.......dis 25 %

Triers.
Butter and Cheese.......dis 25 %

Ventilators (Window).
Nickel and Gilt.......per dozen $16·00 @ 18·00

Vises.
Solid Box, Trenton.......40 to 160 lbs., 12½c. net
" " Wilson's.......30 to 100 lbs., 18c; 100 and over, 22c } dis 30 %
" " Peter Wrights.......16c gold
Parallel, Parker's.......dis 25 %
" Wilson's.......dis 30&10 %
" Sargent's.......dis 55&10 %
" Trenton.......dis 20 %
" Backus and Union.......dis 25 %
" Merrill's.......dis 15 %
" Fisher & Norris.......dis 15&10 %
" Buffalo.......dis 25 %
" Stevens'.......dis 25 %
" Simpson's Adjustable.......dis 20 %
Saw Filers, Bonney's.......per doz $20·00 dis 25 %
" Stearn's.......per doz $20·00 dis 25 %
" Hopkins'.......per doz $17·50 dis 10 %

Wheel Barrows.
Canal (Pugsley & Chapman).......new list dis 30 %
Coal, Garden and Stone (Pugsley & Chapman).......dis 30 %
Jacob's Pat. Self-Oiling R. R. and Canal.......dis 25 %
Well Wheels.—Revised list.......dis 60&10 %

Wire.
Brass and Copper.......List of Jan. 1, 1877, dis 10 %
Bright and Annealed.......Nos. 0 @ 18 dis 52½ @ 55 %
" " 19 @ 26 dis 57½ @ 60 %
" " 27 @ 36 dis 60 @ 62½ %
Coppered.......0 @ 18 dis 47½ @ 50 %
Galvanized, Nos. 0 to 6.......℘ ℔ 8c net
Galvanized, Nos. 7 to 18.......market list dis 25 %
Tinned Nos. 0 to 18.......dis 32½ @ 35 %
Cast Steel.......dis 20 @ 25 %
Tinned Broom Wire, Nos. 18 to 25.......dis 42½ @ 45 %
Galvanized Telegraph, Nos. 8 and 9.......℘ ℔ 9c
Galvanized Telegraph, Nos. 10 and 11.......℘ ℔ 10c
" " 12.......℘ ℔ 10½c
Annealed Fence, Nos. 8 and 9.......dis 55 %
" Grape, " 10 to 14.......dis 55 %
Fence Staples.......℘ ℔ 7 @ 7½c
Fence Staples Galvanized.......℘ ℔ 10c
Stubs' Steel Wire.......$7 00 to 8 gold
Japanned Barb Fence.......℘ ℔ 15c
Galvanized ".......℘ ℔ 18c
Steel Music Wire, Nos. 12 to 27.......℘ ℔ 10c
Judd's Picture Wire.......dis 50 %
Clothes Line Wire.......per coil 50c. net

Wrenches.
American Adjustable.......dis 45 %
Baxter's Adjustable "S" New List, May 1, '76.......dis 20 %
" Diagonal " ".......dis 20 %
Collins & Co.'s.......dis 45 %
Coes' Genuine.......dis 40&10 @ 50 %
" Pattern (Wrought).......dis 50&10 %
" " (Malleable).......dis 70&10 %
Diamond Hardware Co.......dis 40 %
Hull & Belden's "Climax".......dis 25 %
Knight's Patent.......dis 30 %
Lindsay's Patent.......dis 25 %
Lutt's Pattern.......dis 70&5&10 %
Davis Patent Duplex.......new list dis 25 %
Bemis & Call's Patent Combination.......dis 20&5 %
" " Merrick's Pattern.......dis 25&2½ %
" " Brigg's Patent.......dis 20&5 %
Aiken's Pocket (Bright).......$6·00, dis 40 %

Wringers. Per doz.
Universal, without Cog Wheels.......$54·00
" with Cog Wh'ls, No. 2½, small fam'y size 63·00
" " " No. 2, usual " 66·00
Eureka, No. 2, 10 in.......60·00
Novelty No. 10, Small Family Size.......54·00
" No. 2, Medium " ".......66·00
Sherman, " ".......66·00
Reliance, " ".......63·00
Excelsior Bench Wringers.......88·00
" for Set Tubs.......72·00
Crown No. 2.......57·00
" No. 3.......69·00
Climax No. 2.......$71·00 } Less $2·00 per doz. for cash before shipment.
" No. 1½.......79·00
XXX Universal No. 2.......71·00
" " No. 1½.......79·00

Stamped Tin Ware.
Common Stamped Ware.......dis 20 %
Stamped Deep and Retinned Ware.......dis 33⅓ %
Japanned Tin Ware.......dis 5 %
Planished Tin Ware.......dis 20 %

METALS.

IRON.—Duty: Bars, 1 to 1½ cents per lb., Sheet, Band, Hoop and Scroll, 1½ to 1⅞ cents per lb. Provided, that none of the above iron shall pay a less rate of duty than 35 per cent. Pig, $7 per ton; Polished Sheets, 3 cents per lb.; Wrought Scrap, $8 per ton; Cast Scrap, $6 per ton. Railroad, 70 cents per 100 lbs. Boiler and Plate, 1½ cents per lb.

Pig Iron—AMERICAN.
Foundry No. 1.......℘ ton, $20 00 @ 21 00
Foundry No. 2....... " 19 00 @ 20 00
Gray Forge....... " 18 00 @ 19 00
SCOTCH.
Glengarnock....... " 27 00 @ 27 50
Eglinton....... " 25 50
Carnbroe....... " 26 00 @ 26 50
Coltness....... " 27 50 @ 28 00

Bar Iron.
Am. Refined, at mill.......2·25c.

Rails.
Iron, at mill.......℘ ton $35 50 @ 37 00
Steel, "....... " 48 00 @ 50 00
Old Rails....... " 19 50 @ 20 00

Scrap.
Wrought Scrap, from yard....... " 26 00 @ 27 00

Bar Iron from Store.
Common Iron.
¾ to 2 in. round and square.... } 1 to 6 in. x ⅜ to 1 in. ....℘ ℔ 2·2c
Refined Iron.
¾ to 2 in round and square.... } 1 to 6 in. x ⅜ to 1 in. ....℘ ℔ 2·5c
1 to 6 in. x ¼ and 5-16, and 1 to 6 in. x 1⅛ to 2..℘ ℔ 2·7c
Rods—⅝ and 11-16 round and square.......℘ ℔ 2·6c
Bands—1 to 6 x 12 to 3-16.......℘ ℔ 2·9c
Swedish Iron.
Ordinary sizes.......130 00 @ 132 50
Plow size.......

Sheet Iron.

	Common American.	R. G. American.
Nos. 10 to 20 .... ℘ ℔	3¾	4⅜c
21 to 24....... "	3⅞c	4⅝c
25 to 26....... "	3⅞c	5 c
27....... "	4 c	5 c
28....... "	4 c	5½c

Galvanized, 14 to 20, prime, ℘ ℔ 8 c; 2d quality ℘ ℔ 7 c
" 21 to 24 " " 8½c " ... " 7½c
" 25 to 26 " " 9½c " ... " 8 c
" 27 " " 10½c " ... " 8½c
" 28 " " 11 c " ... " 9 c
Patent Planished.......A, 12c.; B, 10c. ℘ ℔
Russia, Nos. 8 to 16.......℘ ℔ 12½ @ 13c
" Stained, No. 1....... " 12c
Am. Cold Rolled....... " 4½c
One piece Corrugated Sheet Iron Elbows.

CHARCOAL IRON.

¼	5	5½	6	7 inch.
$2·50	3·50	4·50	5·25	6·50 per doz.

RUSSIA IRON.

4½	5	5½	6	7 inch.
$5·00	7·00	9·50	12·00	14·00 per doz.

COPPER—Duty: Pig, Bar and Ingot, 5c.; old copper, 4 cents ℘ ℔; Manufactured (including all articles of which copper is a component of chief value) 45 % ad valorem.
American Ingot.......℘ ℔ 20 @ 20½c
English " ....

SHEATHING, BRAZIERS COPPER, BOLTS, &C.
Braziers Copper, ordinary sizes, over 16 oz., per square foot.......32c ℘ ℔
Braziers Copper, ordinary sizes, 16 oz. and over 12 oz., per square foot.......34c. "
Braziers' Copper, 12 oz. per square foot.......36c. "
Circles less than 84 inch in diameter.......38c.
Circles, 84 inch diameter and over.......38c. "
Segment and Pattern Sheets.......35c. "
Locomotive Fire Box Sheets.......32c. "
Sheathing Copper, over 12 oz. per sq. ft.......31c. "
" " 12 oz. ℘ sq. ft. and lighter.......36c. "
Bolt Copper.......32c. "
Copper Bottoms, 32c. ℘ ℔.......net
No Copper is Sheathing except 14x48 inches, and not to exceed 34 oz. to the square foot.
Sheathing Copper, tinned on one side, by the case.......6c. ℘ sheet
For less than a case.......8c ℘ sheet
Tinning Sheets, ordinary sizes.......2½c. ℘ sq. ft
For tinning both sides double the above amount.

O'NEILL'S PATENT PLANISHED COPPER.
14x48.
14 and 16 oz. and heavier.......37c. By the case, 36c. ℘ ℔
12 oz. and lighter.......40c. " " 39c. "
Boiler Sizes.
7 in., 14x52. 8 in., 14x56. 9 in., 14x60
14 and 16 oz. and heavier.......39c. By the case, 38c. ℘ ℔
(And all sizes not over 20 inches wide.)
30x60
14 and 16 oz. and heavier.......41c. ℘ ℔
12 oz.......44c. "

Brass.
Brown & Sharp's Gauge the Standard for Metal; Old English Gauge the Standard for Wire.

BRASS MANUFACTURERS' PRICE LIST.
January 1, 1877.
Cash prices for Roll and Sheet Brass. For less quantity than 100 pounds, add 3 cents per pound.

HIGH BRASS
All Nos. not thinner than to No. 28, wider than 2 in., not wider than 14 in.......30c.
All Nos. to No. 28, inclusive, and widths over 14 to 20 in., inclusive.......34c
All Nos. to No. 28, inclusive, and widths over 20 to 30 in. inclusive.......37c
½c. ℘ ℔ advance on each No. above Nos. 28 to 38, inclusive.
All Brass thinner than No. 38 is Platers' Brass, at.......50c
Sheets 24x48 in., and all sheets cut to particular sizes and lengths under 30 in., in width wider than 2 in...37c
Printers' Rules.......44c
Sheets wider than 30 in. and under 40 in.......45c
" " " 40 in. and over.......47c
Circular sheets, in diam. from 4 in. to 14, inclusive....41c
" " " over 14 " 20, " ...45c
" " " " 20 " 30, " ...48c
" " " " 30 " 40, " ...51c
" " " " 40 in.......54c

LOW BRASS.
Four cents ℘ ℔ more than High Brass.
Gilding Metal 8c, ℘ ℔ more than High Brass.
Platers' or Gold Metal { In Bars.......46c; Sawed.......49c; Planed or Polished.......52c

FOR SLITTING.
Metal, in width 2 in. to ½ in. to No. 28, inclusive, 1c. per ℔. advance.
Metal, in width 2 in. to 1 in., thinner than No. 28, 2c. per ℔. advance.
Metal, in width 1 in. to ½ thinner than No. 28, 3c. per ℔. advance.
Metal, in width ½ in. to ¼, inclusive, not thinner than No. 28, 2c. per ℔. advance.
Metal, in width ½ in. to ¼ thinner than No. 28, 5c. per ℔. advance.
Metal, ¼ in. in width and less, 10c. per lb. advance
Any of the above widths cut to particular lengths, add 7c. per pound.

GERMAN SILVER MARKET METAL AND WIRE.

	Market Metal.	Wire.
4 per cent., 12 in., to No. 26	$0·30	$0·85
6 " " "	·48	·95
10 " " "	·84	1·15
15 " " "	1·04	1·40
18 " " "	1·16	1·55

German Silver Sheets over 12 in. wide, and weighing more than 10 ℔s., $2·25 per ℔.
Advance 2c. for each additional in., in width above 12 in., and 2c. per ℔. on each No. thinner than Nos. 26 to 36 inclusive.
All German Silver thinner than No. 36 is Platers' at 50c. per ℔. additional.
German Silver Scrap one-third less than net price of 12 in. Market Metal. German Silver Turnings, Filings and Chips, half the price of Scrap.

BRASS AND COPPER WIRE.

	High Brass.	Low Brass.	Gild'g and Cop'r.
No. 0 to 20	$0·34	$0·38	$0·41
No. 21	·35	·39	·46
No. 22	·36	·40	·47
No. 23	·37	·41	·48
No. 24	·39	·43	·50
No. 25	·42	·46	·53
No. 26	·44	·48	·55
No. 27	·46	·50	·57
No. 28	·49	·53	·60
No. 29	·52	·56	·63
No. 30	·55	·59	·69
No. 31	·59	·63	·75
No. 32	·63	·67	·81
No. 33	·67	·71	·90
No. 34	·71	·75	1·00

Spring Wire 2c. per ℔. advance.
Flat, Square and Half Round Wire, 5c. per ℔ advance on Round Wire.
Fancy Wire not less than 10c. per ℔. advance of Round Wire.
Brass Rods, No. 8 and larger, not less than 2 feet lengths, 40c.
Wire straightened and cut, smaller than No. 8, and not less than 2 feet lengths, 40c.
Wire and Rods less than 2 feet lengths, special rates.
Twelve cents per ℔. extra for spooling on 1 ℔. spools.

MISCELLANEOUS.
Common Plain Brass Pail Ears.......$0 44
Brass Door Rail.......·45

SCRAP.
High Brass Scrap, 16 cents.
Low " 18 cents.
Gilding, 20 cents.
Turnings, Filings and Chips, half the price of Scrap.
Terms—Net cash. Interest to be added after thirty days.

TUBING. ℘ ℔
Plain to No. 20 inclusive, above ¼ in. to 3 in.......$0 40
" above 3 in.......·50
Nos. 21, 22, 23, two cents advance on List for each Number.
Nos. 24, 25, 26, four cents advance on List for each Number.
Above No. 26, special rates.
Plain ¼ inch.......·78
" 3-16 ".......1·10
" ⅛ ".......1·60
All Mandrel Drawn Tubes, 5 cents advance on List Prices.
Fancy Tubing to No. 20.......48c
English, Scotch and Extra Patterns Fancy Tubing to No. 20.......53c
Tubing Sawed or Cut 2 to 4 feet long, 2 cents advance on List.
Add to 2 cents ½ cent for each additional cutting under two feet.
All Mandrel Drawn Tubes under ⅜ in., 25 cents per pound advance.

ZINC TUBING.
Plain.......·28
Fancy.......·31
Scotch and Extra Patterns.......·34

GERMAN SILVER TUBING.
4 Per cent.......·85
6 ".......·95
9 ".......1·10
12 ".......1·25
15 ".......1·40
16 ".......1·45
18 ".......1·55
20 ".......1·65

STEEL—Duty: Bars, Ingots, Sheets and Coils, valued at 7 cents per lb., or under, 2¼ cents; over 7 cents, and not above 11, 3 cents per lb. over 11, 3¼ cents per lb. and 10 % ad val. Railway Bars 1¼ cents per lb. Railway Bars, in part Steel, 1 cent per lb. Provided, that Metal cemented, cast or made from iron by the Bessemer or pneumatic process, of whatever form or description, shall b classed as

American Cast Steel.
Tool.......15 @ 16c
Spring.......10c
Homogeneous.......12½c
Tire.......12½ @ 13½c
Machinery (round and square).......10 @ 11c
File.......11c
Sheet.......14 @ 16c
Saw Plate, mill and mulay.......14 @ 16½c
Saw Plate, gang and X cut.......13 @ 14c
" circular as to size.......18 @ 30c

Chrome Steel.
Tool.......℘ ℔ 20 @ 21c
Tool, extra fine....... " 40 @ 75c
Spring.......℘ ℔ 12c and upward
Machinery.......℘ ℔ 11c
Hammer....... " 17c,
Gun or Homogeneous....... " 16c

English Steel.—payable in gold, net.
" Best Cast.......℘ ℔ 17½c
" Extra Cast....... " 18½c
" Round Machinery, Cast.......℘ ℔ 10½ @ 11½c
" Swaged, Cast....... " 19½c
" Best Double Shear....... " 17½c
" Blister, 1st quality....... " 14½c
" " 2d quality....... " 13 c
German Steel, Best....... " 11½c
do 2d quality....... " 10½c
" 3d quality....... " 9½c
Sheet Cast Steel, 1st quality....... " 17½c
" " 2d quality....... " 14½c
" " 3d quality....... " 12½c
File Steel, Flat and ½ Round....... " 12½c
" Square and Round....... " 12½c
" Mill....... " 13½c
" Taper to 4 inch....... " 16c
" Taper 3 and 2½ inch....... " 18c

ANTIMONY.......14½c. currency

LEAD—Duty: Pig $2 per 100 lbs.; old Lead, 1½ cent per lb.; Pipe and Sheet, 2⅜ cents per lb.
Spanish.......6⅝ @ 6¾c gold
German Refined.......6⅝c gold
English.......6⅝ @ 7c gold
American.......6⅝ @ 7c currency
Bar.......dis 10 %.......7⅝c.
Pipe.......dis 10 %.......9c.
Tin Lined Pipe.......dis 10 %.......16½c.
Sheet.......dis 10 %.......9½c.
Shot.......dis 10 %. Drop, 9½c. Buck, 10½c.

BABBITT METAL.
N. P. U.......℘ ℔ 8½ @ 9c
A., 25c.; B, 20c.; C, 15c.; D, 12c. ℘ ℔.

SOLDER.......No. 1, 12 @ 12½c.; No. 2, 12c

SPELTER—Duty: In Pigs, Bars and Plates, $1 50 per 100 lbs.
Silesian, cash.......6⅝ @ 7c., gold
American ".......7 @ 11c., currency

TIN—Duty: Plates, Sheets, Tagger and Terne, 1·1c. per lb.; Electro-galvanized Plates, 2 cents per ℔; Manufactures of, not enumerated, 35 per cent. ad val. Bars, Block and Pigs, free. Banca, subject to duty of 10 per cent.
Banca.......℘ ℔ 22c., currency
Straits.......℘ ℔ 20c., currency
English.......℘ ℔ 20c., currency

TIN PLATES, CURRENCY PRICES.
I C 10x14, 12x12, 14x20 } Prime Charcoal.......$7·50 @ $7·75
I X 10x14, 12x12, 14x20 } Prime Charcoal.......$9·75 @ 10·00
D C 12½x17 ".......7·25
D X 12½x17 ".......9·50
For each additional X add.......2·25

COKE TIN PLATE.

	Best.	2d quality.	Ordinary.
I C 10x14, I C 12x12, I C 14x20	7·25	7·00	6·50 @ 6·75

TERNE PLATE.

	Prime Char.	2d qual.	Coke.
I C 14x20	$6 75 @ 7·00	6·50	6·00 @ 6·25
I X 14x20	9·25		
I C 20x28	14·50	13 50 @ 14·00	13 00 @ 13·00
I X 20x28	19·50		
I C 20x28	21·75		

I C 14x20 M F. Brand.......$8·00 @ 8 25

ZINC.—Duty: Pig or Block, $1 50 per 100 lbs. Sheet 2½c. ℘ ℔.
Sheet.......cask 8c
".......open 8½c

Paper Stock, Old Metals, &c.

(Dealers' Selling Price.)
Canvas linen.......6 @
" cotton, No. 1.......6½
" " No.......@ 3½
White linen rags, No. 1.......5⅛
" " No. 2.......4½ @
Colored.......2⅞ @
Mixed woolens.......2⅛ @ 3⅛
Soft woolens.......5⅛ @ 6⅛
Gunny bagging.......2 @ 2⅛
Jute Butts.......2¼ @ 2⅜
Kentucky bagging.......5⅛ @ 5⅜
Waste paper and scraps.......1 @ 1⅛
Rope cuttings.......1⅜ @ 3
Kentucky Bale rope.......4 @ 4½
Oakum junk, No. 1.......5⅛ @ 5⅜
" No. 2.......@ 4
Grass rope.......3⅜ @ 4
Tarred Shaking.......2
White Collar Cuttings, all paper.......7 @
" " muslin lined.......5 @
" " Envelope.......7 @
Hard White Shavings, No. 1.......6⅛ @
Soft " " No. 1.......6 @
White Shavings, No. 2.......5⅛ @
Mixed Shavings, part white.......4 @ 4½
Imperfections, No. 2, best folded sheets.......5 @
" 1, Heavy Stock.......4⅛ @
Book Stock, Mixed.......4 @
" " No. 2, light.......2⅛ @ 2⅜
Newspaper Stock.......3
Prints.......1⅛ @ 2
Pure Manilas.......2⅛
Bogus Manilas and Hardwares.......1 @ 1⅛
Commons.......1 @
Binders' Board Cuttings.......1⅛ @
Straw Board Cuttings.......1⅛ @
Woolen Tailor Clips.......13 @ 14
Satinet Tailor Clips.......2 @

Old Metal.
Copper.......@ 19
Yellow metal.......13½ @
Brass light.......16
Brass, heavy.......12
Heavy Composition.......15
Old lead, solid.......5⅛ @ 5
Tea lead.......
Zinc.......@ 4½
Pewter, No. 1.......15
" No. 2.......9 @ 10
Spelter.......@ 6⅛
Wrought iron.......per ton $22 00
Machinery iron.......per ton $15·00
Light Iron.......per ton $14·00
Stove plate.......per ton $12·00
Burnt Iron.......per ton $5·00

Paints, Oils, etc.

Paints.
Black lamp—Coach Painters.......℘ ℔ 20c
" " Ordinary.......6c
" Ivory Drop, fair.......15c
" " best.......26c
Black Paint in oil.......kegs, 9c.; ass't'd cans, 11c
Blue, Prussian, fair to best.......50 @ 75c
" " " " in oil.......25 @ 55c
" Chinese dry.......83c
" Ultramarine.......18 @ 30c
Brown, Spanish.......1⅛c
" Van Dyke.......9c
Carmine, 40.......
Green, Chrome.......15 @ 23c
" " in oil.......18 @ 25c
" Paris.......good, 30c; best, 40c
" " in oil.......30c " 45c
Mineral Paints.......1⅛ @ 4c
Orange Mineral.......14c
Red Lead, American.......8½c
" " English.......10⅛
" Venetian (N. C.) dry.......2c
" " in oil.......ass't'd cans, 11c; kegs, 8½c
" Indian, dry.......10c
Rose Pink.......13c
Sienna, American, Raw.......4c
" Burnt.......4½c
" " in oil.......16 @ 20c
" Raw ".......15 @ 25c
Umber, Burnt.......4 @ 8c
" " in oil.......16 @ 21c
" Raw.......3½ @ 7½c
" " in oil.......16 @ 22c
Vermillion, Chinese.......1 00, gold
" English.......72½c. gold
" Trieste.......1 10 "
" American, Common.......20c
White Lead, American, pure dry.......9½c
" " " in oil.......10c
White, Paris, English, prime.......in bbls. 2⅛ @ 2½c
Yellow Ochre, French.......2c
" " " in oil.......ass't'd cans, 11c; kegs, 8c
" " Vermont.......in casks 1½c
Yellow Chrome.......17 @ 27c
" " in oil.......18 @ 28c
Zinc White, American No. 1 dry.......9c
" " 1, in oil.......11c
" French (Paris).......11c
" " in oil.......12c

Oils.
Linseed Raw.......℘ gal. casks, 66c. bbl., 67c
" Boiled....... " 71c. " 72c
Whale, Crude....... "
" Bleached Winter....... " 75c
Sperm, Crude....... " 1·60
" Winter unbleached....... " 1·65
" " Bleached....... " 1·75
Seal, Extra Refined....... "
Lard, Pure Winter....... " 1·05
" Spring....... " 1·00
Cotton Seed, Crude....... " 62c
" Southern Yellow....... " 67c
" White.......
Neatsfoot, Winter.......70c @ $1·10
Natural Lubricating.......38c @ 40c

Sundries.
Asphaltum.......5c
Benzine.......℘ gal. 16c
Chalk.......⅜c
" Block.......
Dryer, Patent, Am'n.......ass't cans, 10½c.; kegs, 9c
" " English....... " 11c.; " 9c
Flocks.......
Frostings.......5½c
Glue, White.......38 @ 44c
" Sheet.......20c
Glaziers' Points, Zinc.......9c
Gum, Copal.......2c
" Damar.......25c
" Shellac, English.......55c
" " " dark.......50c
Litharge.......9½c
Pumice Stone, selected Lumps.......4 @ 6c
" powdered.......4c
Putty in bladders.......3c
" in bulk.......2½c
Rotton Stone, soft, English.......8c
Spirits Turpentine.......47c
Whiting, Spanish.......⅜c

Glass.

FRENCH WINDOW GLASS.
Prices current per box of 50 feet.

Single Thick.

SIZES.	1st.	2d.	3d.	4th.
6 x 8 to 10 x 15	$7·50	$6·75	$6·25	5·75
11 x 14 to 16 x 24	8·50	7·75	7·25	6·00
18 x 22 to 20 x 30	10·75	9·75	8·75	7·75
15 x 36 to 24 x 30	12·25	10·75	9·00	
26 x 28 to 24 x 36	13·00	11·50	9·75	
26 x 36 to 26 x 44	14·50	13·25	10·75	
26 x 46 to 30 x 50	15·00	14·00	11·25	
30 x 52 to 30 x 54	16·00	14·50	12·00	
30 x 56 to 34 x 56	17·25	15·50	13·50	
34 x 58 to 34 x 60	18·25	17·25	15·00	
36 x 60 to 40 x 60	20·75	18·75	17·75	

Double Thick.

SIZES.	1st.	2d.	3d.	4th
6 x 8 to 10 x 15	$12·00	$11·00	$10·00	$9·25
11 x 14 to 16 x 24	13·75	12·50	11·75	10·50
18 x 22 to 20 x 30	17·25	15·75	14·00	
15 x 36 to 24 x 30	19·75	17·25	14·50	
26 x 28 to 24 x 36	21·00	18·50	15·75	
26 x 36 to 26 x 44	23·25	21·25	17·25	
26 x 46 to 30 x 50	24·00	22·50	18·00	
30 x 52 to 30 x 54	25·75	23·25	19·25	
30 x 56 to 34 x 56	27·75	25·00	21·75	
34 x 58 to 34 x 60	29·25	27·75	24·00	
36 x 60 to 40 x 60	33·25	30·00	27·75	

Sizes above 40 x 60—$10·00 per box extra for every five inches.
An additional 10 per cent. will be charged for all Glass more than 40 inches wide. All sizes above 52 inches in length, and not making more than 81 united inches, will be charged in the 84 united inches bracket.
Discount 50&15 %.

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Best Cast Steel Wire Rods and Steel Wire of the finest quality for all Purposes.

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WARRANTED CAST STEEL, especially adapted for DIES and TURNING TOOLS, DRILLS, COLD CHISELS, PUNCHES and all kinds of MACHINISTS' TOOLS.
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"JENKS" TIRE, TOE CORK, SLEIGH SHOE, BLISTER, AND PLOW STEEL;

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AGENCIES IN BOSTON AND PHILADELPHIA.

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CAST STEEL,

Warranted most SUPERIOR and UNSURPASSED for

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Manufacturers of all Descriptions of Steel.

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Ground, granulated and especially prepared to suit all branches of the home trade.

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Crescent Steel Works,

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ICE CREEPERS,

Patented August 1st, 1876.

To prevent slipping on the ice or icy pavements. The attention of Jobbers and Wholesale Dealers is called to this invention, which is universally acknowledged as the best yet introduced to the trade. For terms and price list address

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Three pairs, one of each kind, sent by mail on receipt of 37 cents.

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(Established in 1848.)

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Manufacturers of Extra Quality Tool

CAST STEEL,

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SAW PLATES,

All descriptions of Cast and German

Spring and Plow Steel

Elliptic and Side Springs, Seat Springs,

AXLES, STEEL TIRE,

Plow Wings, Shares, Cultivators, Reaper Bars, Crow Bars, &c., &c.

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Special Steel

FOR

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Turns out at least **double work** by increased speed and feed, **and cuts harder metals** than any other Steel. Neither hardening nor tempering required.

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Sporting, Shipping, and Mining

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THE MOST POPULAR POWDER IN USE.

Also, SPORTING, MINING, SHIPPING, AND BLASTING POWDER,

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Invite the attention of the Hardware Trade to their facilities for delivering

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The superiority is well known of our brands of Sporting Powder.

Orange Rifle, Orange Ducking, Orange Lightning.

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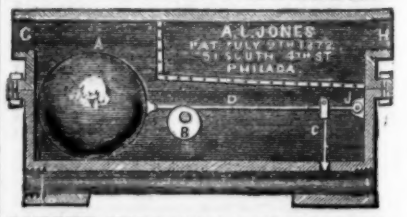
SAFETY-FUSE at wholesale.

HIGHEST MEDAL AWARDED.



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BUTCHERS' KNIVES,
BUTCHERS' STEELS,
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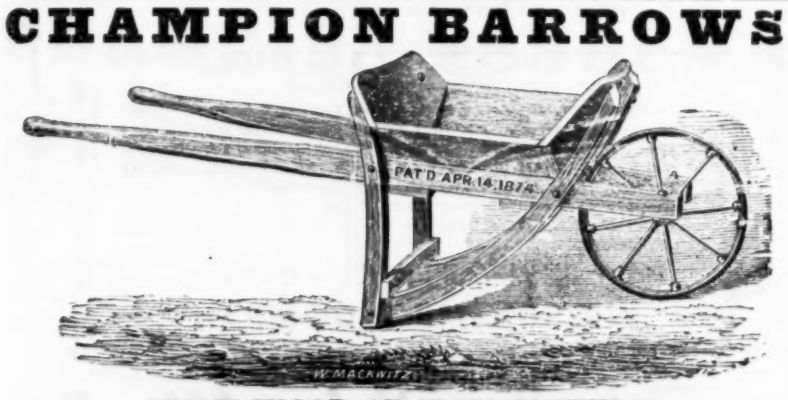

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A first-class article and a specialty, that will make a demand in any market and affords a good margin for dealers. We are prepared to furnish them in large quantities. Manufactured by

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Lump and Ground.

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Threshing Machine Teeth, Ice Chain, Chain Links, Cold Pressed Nuts, Washers, Ship Chandlery Hardware, &c.

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Hot Pressed Nuts, Machine Bolts, Lag Screws, Skein Bolts, Bolt Ends, Bridge Bolts, Boiler Rivets, Plow Bolts, &c.

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Hand Made Files, Rasps, &c.

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Norway Iron Rivets, with Oval, Flat, Countersunk or Special Heads.

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Machine and Hand Taps, Set and Cap Screws.

WALTER AIKEN IRON WOOD SCREWS,

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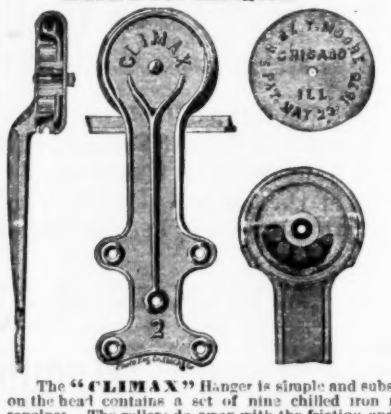
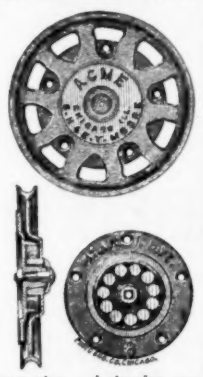
Wood Screws made from Superior Charcoal Wire.

"CLIMAX"
Barn Door Hangers.



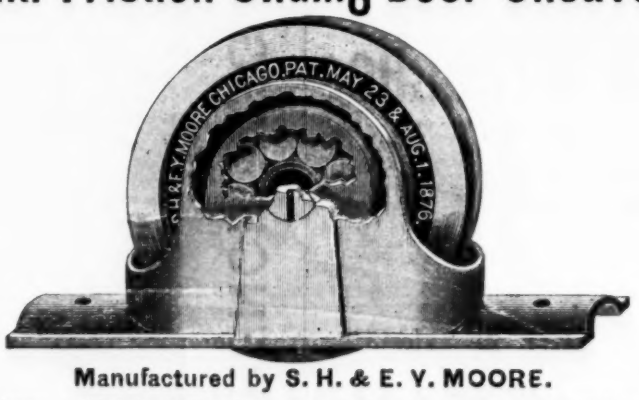
"ACME"
Barn Door Rollers.



The **"CLIMAX"** Hanger is simple and substantial in its construction. A circular cup on the head contains a set of nine chilled iron rollers, within which the hub of the wheel revolves. The rollers do away with the friction and wear on a center pin which is the objection to the common wheel hangers. In the "Climax" there is the friction of rolling surfaces only. Other hangers have the wheel alone, or the rollers alone; the combination of both in the Climax makes it the easiest running hanger in existence.

The **"ACME"** Roller is made on the same principle as the "Climax" Hanger. All the parts are constructed in the strongest manner and turned in a lathe to work perfectly true and smooth. It is adapted to a track made of ⅝ inch half round iron.

MOORE'S
Anti-Friction Sliding Door Sheave.



Manufactured by S. H. & E. Y. MOORE.

Moore's Anti Friction Sliding Door Sheave is also made on the same principle as the "Climax" Hanger. The hub of the wheel revolves within a set of chilled iron rollers cast in steel molds. The parts are all accurately fitted by lathe work, insuring an easy and noiseless motion, with great strength. The friction being that of rolling surfaces only, the sheave requires *no oiling.* It is very simple in its construction, and there is no tendency to get out of order. It is strongly made and handsomely finished, and is equal to any anti-friction sheave in the market.

PRICE LIST.

"CLIMAX" No. 1, extra large and heavy, with long strap for heavy warehouse doors, etc. Weight, 14 lbs. per pair. Packed ½ doz. pairs in a case.	per doz. pairs, $24·00
"CLIMAX" No. 2, standard size, improved and strengthened. Weight, 8 lbs. per pair. Packed 1 doz. pairs in a case.	per doz. pairs, 15·00
"CLIMAX" No. 3, for light doors. Weight, 5½ lbs. per pair. Packed 1 doz. pairs in a case.	per doz. pairs, 12·50
"ACME," 8 inch wheel. Packed ½ doz. pairs in a case.	per doz. pairs, 18·00
"ACME," 6 inch wheel. Packed 1 doz. pairs in a case.	per doz. pairs, 15·00
MOORE'S ANTI-FRICTION SLIDING DOOR SHEAVE, 4 inch wheel. Each set packed in a paper box. ½ doz. sets in a case.	per set, 3·60

Liberal discount to the trade.

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Walter R. Wood,
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STONES.

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UNION,
PREMIUM,
DIAMOND GRIT,
WHITE MOUNTAIN,
INDIAN POND (red and white)

Stones gotten up or labeled in any style desired. Price and quality guaranteed.

Our Stone are of good keen grit and *will not glaze.*

Steam Oil Stone Works.
F. E. DISHMAN,

Successor to WM. GALBRAITH & CO.

Manufacturer of and Dealer in the Best

Washita, Arkansas, Hindostan and Sand

STONES,

☞ Of various sizes and patterns, suited to every variety of Mechanical use. New Albany, Ind.

Send for price list.

BOYD & CHASE,

The largest manufacturers in the world of

OIL STONE

Of all description.

107th Street and Harlem River,

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JOHN H. REOCK, PASSAIC SPRING WORKS,

Manufacturer of Railroad Car, Locomotive, Omnibus Platform and every variety of Carriage and Buggy Springs. 272 to 280 Passaic St., Newark, N. J.

Lock Box 165

CHAS. FORSCHNER,

Manufacturer of

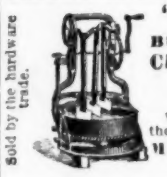
Butchers' Tools, Machinery,

And Excelsior

Upright Sausage Stuffers.

(Forschner's Patent.)

41 Elvington St., bet. Forsyth and Eldridge, N. Y. ☞ Send for Illustrated Price List with Specified Dimensions.



Sold by the hardware trade.

"DRAW CUT"

BUTCHERS' MACHINES.

Choppers, Hand and Power.

Stuffers,

Lard Presses.

Warranted thoroughly made the BEST IN USE.

MURRAY IRON WORK

Burlington, Iowa.

Coal.

A. PARDEE, Hazelton, Pa. J. G. FELL, Phila.

A. PARDEE & CO.,

303 Walnut St.,

PHILADELPHIA.

No. 111 Broadway, New York.

MINERS AND SHIPPERS OF

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The following superior and well known Lehigh Coals are mined by ourselves and drifts connected with us, viz.

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GEORGE G. NEWTON, Agent. Shipments by Railroad and Morris Canal direct from the mines, and from Perth Amboy and Jersey City, for all Points.

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Dealers in

SCRANTON, LEHIGH and other COALS.

Retail Yard on D. L. & W. Railroad, cor. Grove and 19th Sts., Jersey City. Coal delivered direct from Shutes to Carts and Wagons. Families and manufactories supplied with the best qualities of Coal at the lowest rates.

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WHEELING HINGE CO.,

Wheeling, West Va.,

Manufacturers of

Wrought Butts, Strap & T Hinges, Wrought Hooks, Hasps & Staples, Wrought Repair Links & Washers,

GRAHAM & HAINES, Sole Agents, 113 Chambers & 95 Reade Sts., N. Y.

QUACKENBUSH, TOWNSEND & CO.,

Hardware, Cutlery, &c.

85 Chambers & 67 Reade Sts., N. Y.

Depot for THOS. JOWITT & SONS, (Sheffield, England,) FILES and HORSE RASPS.

Rough & Ready And CLIPPER SCYTHES, Warranted.

Manufacturers of the

CHALLENGE DOOR & GATE SPRING. PATENTED JULY 11TH 1871.

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Agents for Norwich Lock MFG. CO.

"BEAVER" American) FILES and HORSE RASPS.

"WIDE AWAKE" AXES.

BLAKE BROTHERS

HARDWARE CO.,

New Haven, Conn.

ESTABLISHED 1830.

Manufacturers of

BUILDERS' HARDWARE, BUTTS, HOUSE TRIMMINGS, CARRIAGE,

And GENERAL HARDWARE

The attention of our old Customers and the Trade generally is invited to our new Illustrated Catalogue just issued, comprising a full assortment of our well known staple goods: **Butts** (Drilled and Wire jointed), Thumb Latches, Sash, Upright Screw and Side Pulleys, Wardrobe and Harness Hooks, Draw Pulls, Nut Crackers, Cork Screws, &c., &c. Also several new and attractive styles of Fancy Hardware, **at prices to suit the times.**

Our new Patent Fancy Open Work Cap Butt, with Ornamented Knuckle, in Real and Imitation Bronze, and our Nickel Plated Cap Butts, with concealed Screws, are the handsomest in the market, and are attracting much attention. While making plain and japanned goods a specialty, we are prepared to meet the increasing demand for ornamented bronze and nickel plated House Trimmings. Goods packed in boxes or bundles, as may be preferred. For catalogue and price list address

BLAKE BROTHERS HARDWARE CO.,

New Haven, Conn.

G. W. Bradley's Edge Tools.

Butchers' Cleavers,
Butchers' Choppers,
Axes and Hatchets,
Grub Hoe and Mattocks,
Mill Picks
Box Chisels and Scrapers,
Ring Bush Hooks,
Axe Eye Bush Hooks,
Socket Bush Hooks,
Watt's Ship Carpenters' Tools,
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Pat. Ratchet Screw Wrenches

Patented May 30, 1876.

Best and Strongest in the Market.

"STEEL BAR." SAVES HALF THE TIME.

First Premium awarded at the Centennial Exhibition.

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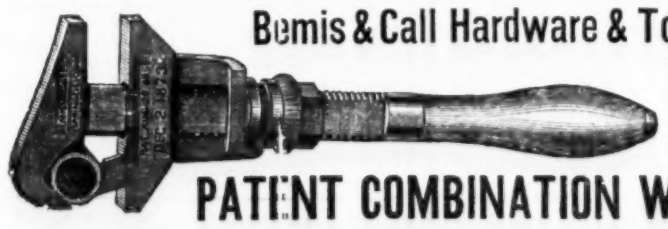

This Wrench can be furnished with Briggs' Pat. Nut or Sleeve.

PATENT COMBINATION WRENCH.

These Wrenches are made from the best of Wrought Iron, with Steel Head and Jaw, Case-Hardened throughout, and not only combine all of the superior qualities of our cylinder or Gas Pipe Wrenches, but also all requisite Combinations of a regular Nut Wrench, thus making a Combination which has no equal.

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BEMIS & CALL HARDWARE & TOOL CO. Springfield, Mass.

METALLIC SIEVES.

Protected by 14 patents.

MANN'S PATENT.

Best Sieve known, Cheap, Neat and Durable.

ADAMS & WESTLAKE MFG. CO.,

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GRANT & CO., Newark, N. J

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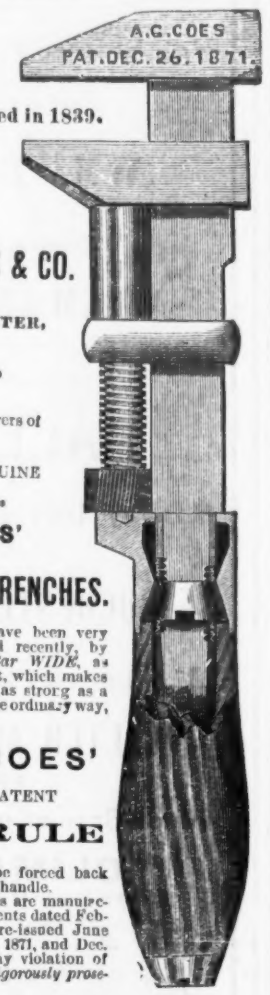


Established in 1839.

A. G. COES & CO.

WORCESTER,

Mass.,

Manufacturers of

THE GENUINE

COES'

SCREW WRENCHES.

Our goods have been very much improved recently, by making the *Bar WIDE*, as shown in the cut, which makes a 12 in. Wrench as strong as a 15 in. made in the ordinary way, and by using

A. G. COES'

NEW PATENT

FERRULE

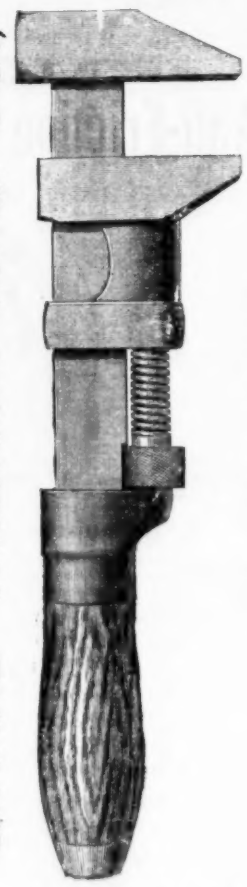
Which cannot be forced back into the handle.

☞ Our goods are manufactured under Patents dated February 7, 1860, (re-issued June 29, 1871), May 2, 1871, and Dec. 26, 1871, and any violation of either will be *vigorously prosecuted.*

We call particular attention to our new Patent Ferrule, with its Supporting Nut (shown in section in the above cut), which makes the strongest Ferrule fastening known.

A. G. COES & CO.

Girard Wrench.



GIRARD WRENCH MFG. CO., GIRARD, PENN.

This Wrench is presented to the trade with full confidence that it is equal in all respects to any heretofore manufactured, and we fully guarantee our goods in every respect.

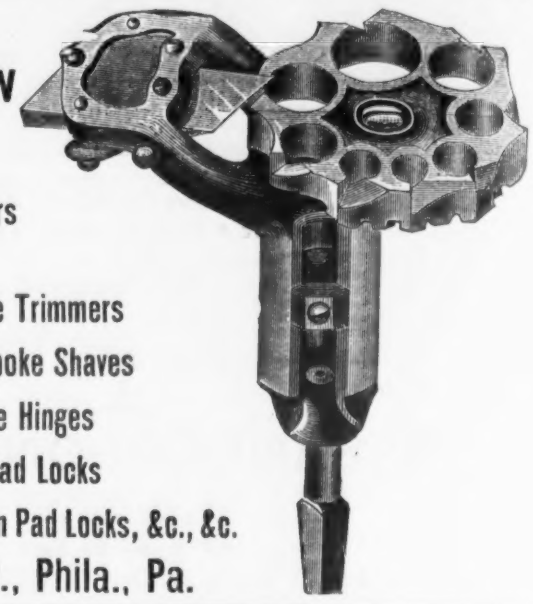
Send for circular, terms and prices.

Lloyd, Supplee & Walton,

HARDWARE FACTORS.

MANUFACTURERS OF

Bonney's Hollow AUGERS.



Stearn's Hollow Augers and Saw Vises

Bonney's Spoke Trimmers

Double Edge Sooke Shaves

Adjustable Gate Hinges

Scandinavian Pad Locks

Flat Key Brass and Iron Pad Locks, &c., &c.

625 Market St., Phila., Pa.

ENTERPRISE MANUFACTURING CO. of PA.

PATENTED HARDWARE MANUFACTURERS.

MRS. POTTS' COLD HANDLE IRONS,
COFFEE, SPICE AND DRUG MILLS,
CORK PRESSERS, SAUSAGE STUFFERS,
FRUIT, LARD & JELLY PRESSES Combined,
MEASURING FAUCETS, TOBACCO CUTTERS,
SELF-WEIGHING CHEESE KNIVES,
BUNG-HOLE BORERS, &c., &c., &c.

S. W. cor. American and Dauphin Sts.

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79 Reade Street, New York. Agent for

North Carolina Handle Co.,

(WILSON & SHOBER, Proprietors.)

Manufacturers of *SPOKES, AXE, PICK, SLEDGE, HAMMER, HATCHET and other Handles.* Full assortment always on hand.

GREENFIELD TOOL CO.,

Greenfield, Mass.

Sole Manufacturers of the Celebrated

"Diamond" PLANE IRONS

EXTRA PLATED TABLE CUTLERY. PATENT FORGED OX SHOES. The only Shoe made with concavity to fit hoof. BENCH AND MOULDING PLANES of every description, &c., &c. Drop Forgings to order. Address for Catalogue with stamp.

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NEW LONDON, CONN.

MANUFACTURERS OF

SOLID BOX VISES.

With or without Convex and Concave Washers.

Jackscrews, Braces, Coffee Mills, Turning Lathes; Clamp Heads and Screws; Parallel Bench Vises, Sash Pullies, Hat House Pullies, Composition Cocks, Bench Screws, Vise Screws, Gridirons, Drill Stocks and Bows, Box Chisels, Rivets, Sheaves, Block Pins, Composition Roller and Iron Bushings, Riggers' Screws, Caulkers' Tools, Pump Chambers, Belaying Pins, Marlin Spikes, Malleable Iron Castings, and General Hardware.

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938 to 954 River St. & 67 to 83 Vail Ave., Troy, N. Y.,

VALVES

(Double and Single Gate, ¼ in. to 48 in.—outside and inside Screws, Indicator, &c.) for Gas, Water and Steam. Send for Circular.

Also FIRE HYDRANTS.

PHILADELPHIA.

(Corrected weekly by Lloyd, Supplee & Walton).

Terms, 30 days. For 60 or 90 days, interest added at 10 per cent. per annum.

Anvils.—Solid Cast Steel.....₱ ℔ 14c
Peter Wright's, ₱ ℔, gold.....11 @ 10½c
Wilkinson's " ..... 11 c
Eagle.....9 cents per lb—dis 20%

Apple Parers.—Domestic.....per doz $ 6 50
Peach Parers..... " 10 50
Bay State Parer, Corer and Slicer..... " 12 50
Other makes..... " 7 50
Lots of 5 to 25 dozen special price.

Axes.—
Mann's (according to weight)..Per doz. $10 00 @ 9 00
Red Indian. " " " " " 10 50 @ 9 50
Red Chieftain " " " " " 11 00 @ 10 00
Hunt's " " " " " 12 50 @ 11 50

Augers and Auger Bits.—
Benjamin Pierce.....dis 35 %
Douglass' & Ives' Bits.....dis 45 @ 50 %
Connecticut Valley Auger Bits.....dis 45 @ 50 %
Cook's Bits.....dis 50 @ 50&5 %
Jennings' Bits.....dis 10 %
Bates' Nut Augers.....dis 25 @ 25&10 %
Douglass' & Ives' Augers.....dis 45 @ 50 %
Watrous' Ship Augers.....dis 20 @ 25 %
Bonney's Pat. Hollow Augers.....dis 25&10 %
Stearns' Patent Hollow Augers.....dis 25&10 %

Balances.—
Light or "Common".....dis 2½&10 %
All other Spring Balances.....dis 25 %

Bells.—Bevin Bros. Mfg Co. Light Hand Bells.....dis 70 %
Hand, Common.....70&10 @ 75 %
Common (Tissue Paper Weight).....dis 70&10 %
Swiss Pattern Hand Bells.....dis 50 %
Connell's Door Bells.....dis 50&5 @ 50&10 %
Gt. Western & Kentucky Cow, new list.....dis 40 %

Boring Machines.—Bates Mfg. Co., complete with augers.....dis 25 @ 25&10 %
Douglas Mfg. Co., complete with augers.....dis 40 %
Common Boring Machines, no Augers.....$3 15 net
Angular " ..... 4 00 net

Bolts.—Eastern Carriage Bolts.....dis 75 @ 75&5 %
Western " " .....dis 75 %
Philadelphia " " .....dis 60&10 @ 60&15 %
Coleman " " .....dis 60&10 @ 60&15 %
Wrought Shutter, Stanley.....dis 50 @ 50&10 %

Braces.—Barber's.....dis 40&5 %
Packus.....dis 50 @ 50&10 %
Bartholomew's American Ball.....dis 20&10 %
Spofford.....dis 50 %

Butts.—Cast Fast Joint, Narrow.....dis 30, 12½&10 %
" " Broad.....dis 40, 12½&10 %
Cast Loose Joint.....dis 50, 12½&10 %
" Acorn, Loose Pin.....dis 45, 12½&10 %
" Acorn " Jap'd.....dis 55, 12½&10 %
" Mayers and Parliament.....dis 40, 12½&10 %
Lull & Porter's (Phila.) Hinges.....dis 65 @ 65&10 %
Wrought Loose Pin.....dis 40&5 %
" Table Hinges and Back Flaps.....dis 35&5 %
" Narrow.....dis 40&5 %
" Loose Joint.....dis 40&5 %

Blind Butts.
Parker.....dis 70 @ 70&10 %
Buffalo Hardware Co.....dis 60 @ 60&10 %
Clark.....dis 60 @ 60&10 %
Shepard.....dis 60 @ 60&10 %
Garretson.....dis 60 @ 60&10 %

Chains.—German Halter and Coil.....dis 25 % gold
Galvanized Pump.....net 18 @ 13½c
Best Proof Coil Chain—

₱ ℔	12	9	8¼	8	7⅜	7¼	7c gold
	3-16	¼	5-16	⅜	7-16	½	⅝ in.

By the cask, 560 lbs., ½c per lb. less. Common Chain, ½c per lb. less.

Chisels.—Socket Framing.....dis 60, 10&10 %
Socket Firmer.....dis 60 @ 60&10 %
Tang " ..... dis 40 %
Beaty's Framing and Firmer.....dis 20 %

Casters.—Iron Bed.....dis 50 @ 50&10 %
Porcelain Wheel Bed.....dis 50&10 %
Iron and Brass Wheel Plate.....dis 50 @ 50&10 %
Porcelain Wheel " .....dis 50 @ 50&10 %

Clothes Wringers.—Universal.....per doz $66 00
Novelty. " 66 00
Monitor. " 66 00
Discount on 2 dozen lots, $2 per dozen

Coffee Mills.—Common Box and Side.....dis 25 %
Patent Box and Side.....dis 25 %

Cutlery.—American Pocket (best).....dis 50 @ 33⅓ %
Landers, Frary & Clark, J. Russell & Co. and Lamson & Goodnow Mfg. Co. Manufacturers' net prices

Drawing Knives.—
Hart Mfg. Co.'s.....dis 60&10 @ 60, 10&10 %
Adjustable Handle.....dis 10 @ 15 %
Beatty.....dis 15 @ 20 %

Fry Pans.
Tinned.....dis 30 @ 50&10 %

₱ doz.	$3 50	4 00	4 50	5 00	5 50	6 50	7 50	9 00	10 00
No.	0	1	2	3	4	5	6	7	8

Burnished.....dis 50 @ 50&10 %

₱ doz.	$3 00	3 75	4 25	4 75	5 25	6 00	7 00	8 00	9 00
No.	0	1	2	3	4	5	6	7	8

Files.
Nicholson Mill Files.....new list, dis 25 @ 30 %
" Bastard " dis 25 @ 30 %
" Taper " dis 25 @ 30 %
Butcher's Mill.....₱ £ gold $4 75 @ $4 50
" Bastard.....₱ £ gold 4 75 @ 4 50
" Taper.....₱ £ gold 4 75 @ 4 50

Floting Machines.
Mrs. Knox—4 in. rolls.....each $3 25 dis 10 %
" —3 in. rolls.....each 3 80 dis 10 %
" —3 in. roll.....each 5 00 dis 10 %
Imperial—4¼ in. roll.....each $3 25 net @ dis 10%
" —6 in. roll.....each 3 75 net @ dis 10%
Crown—4 ¼ in. roll.....each 3 50 net
" —6 in. roll.....each 4 00 net

Hammers.
Yerkes & Plumb's.....new list dis 25 %
Hammond & Son's.....dis 25 %
Veree.....dis 20 @ 25 %

Hatchets.
Beatty's.....dis 25 %

Shingling and Half.	₱ doz.	$7 00	7 50	7 75	8 00
	No.	1	2	3	

Yerkes & Plumb.....dis 25 %

Shingling and Half.	₱ doz.	$7 00	7 50	8 00	8 50
	No.	1	2	3	4
Claw	₱ doz.	$7 50	8 00		
	No.	1	2		3

Hinges.
Strap and T.....dis 60&5 %

Horse Nails.

	Nos.	5	6	7	8	9	10
Putnam		32	28	26	25	24	22
Ausable Pointed & Polished, list.		28	26	25	24	23	
Clinton Horse Nails		20	18	17	16	15	
" Polished and Pointed		21	19	18	17	16	
Globe		28	26	25	24	23	

Discount on Ausable, Globe and Putnam.....dis 10 %

Knobs.—
Rim and Mortise.....dis 35 @ 35&2 %

Locks and Latches.
Door Locks, Rim and Mortise.....dis 35 @ 35&2 %
Tilt and Cupboard Locks.....dis 25 + 5 @ 25, 5&2 %
American Padlocks.....dis 33⅓ @ 33⅓&5 %
Scandinavian Pad Locks.

₱ doz.	$10 50	10 50	12 00	12 00	15 00	15 00	50&10 @
No.	59	59½	60	60½	61	61½	50&15 %
₱ doz.	$18 00		18 00		22 00	22 00	10 %
No.	62		62½		63	63½	

United States Lock Co.....dis 33⅓ @ 33⅓&5 %
Trunk Locks.....dis 25 %

Lanterns.—Square Candle and Oil.....dis 10 %
Globe for Oil.....dis 10 %
" Kerosene.....dis 10 %
Tubular Lanterns.....dis 10 %

Mattocks.—Long and Short Cutter.....dis 25 %
Western Pattern.....dis 25 %
Pennsylvania Pattern.....dis 15 %

Molasses Gates.
Enterprise Mfg. Co.'s Measuring Faucets.....dis 20 %
Stebbins' Gates.....dis 60&10 %
Lincoln's " .....dis 60&10 %
Landers, Frary & Clark's Petroleum.....dis 15&10 %
Taylor's Petroleum Faucets.....dis 20&10 %
Brass Liquor Cocks.....dis 45 %

Meat Cutters.—Dixon's.....dis 25 %
Woodruff.....dis 25 %
Stowe.....dis 25 %
Hale's.....dis 35 %
Stuffers.....dis 25 %

Planes.—Auburn Tool Co., "Bench".....dis 40 %
Second Quality.....dis 50 %
Bailey Iron Planes.....dis 35&10 %
Evans Pat. Circular.....net

Plane Irons.—American.....dis 10 %
Butcher's.....gold £, $3 00

Plumbs and Levels.
Adjustable.....dis 60&10 %
Non-Adjustable.....dis 60&10 %

Picks.—Philadelphia.....net
Pittsburgh.....net

Rules—Boxwood.....dis 55&10 %
Ivory.....dis 45&10 %

Rakes.—Cast Steel Garden.....dis 40 @ 40&5 %
Malleable Garden.....dis 40 @ 40&5 %
Wood Head Iron Teeth.....dis 40 @ 40&5 %

Steelyards.—American Pattern.....dis 20 @ 25 %

₱ doz.	$5 50	7 00	9 00	10 00	12 00
No.	50	100	150	200	300

English Pattern.....dis 15 @ 20 %

₱ doz.	$7 00	8 67	10 67	12 67	14 67	16 67
No.	50	100	150	200	250	300

Hart's Pattern.....dis 50 @ 55&10 %

₱ doz.	$14 50	17 75	21 00	26 50	31 00	35 50
No.	50	100	150	200	250	300

Scythes.—Golden Clipper, Damascus Blade, Boxed and Sharpened.....₱ doz. $9 00
Clipper No. 10, Bronzed Blade Boxed and Sharpened.....₱ doz. $9 00
Clipper No. 8, Painted Red, Boxed and Sharpened.....₱ doz $8 50
Cast Steel Scythes.....$7 50 @ $8 00
German " .....$6 50 @ 7 00

Squares.—Steel and Iron, new list.....dis 50 %
Saws.—Disston's Cross Cut, No. 1.....per ft., 55c
Disston's Cross Cut No. 2.....per ft., 50c
Disston's Cross Cut, Patent.....per ft., 50c
Disston's Circular Saws.....dis 25 @ 30 %
Disston's Hand Panel and Rip, &c.....dis 20 %
W. McNiece a H'd, Cross-Cut & Circ'r, new list.dis 15 %
Boynton's Lightning Cross-Cut.....dis 50 @ 50&10 %
Boynton One-Man Cross Cut Saws.....dis 40&10 %
Shovels and Spades.
Rowland's Plain Back.....dis 47½ & 2½ %
" Back Strap.....dis 47½ & 2½ %
Extra discount on above for 10 days' cash, 5 %.
Oliver Ames & Sons, new list.....dis 30 %
Sad Irons.—Richmond (poushed face).....per lb. 3½c
Richmond (nolished face).....by the case " 3
Stone.—Arkansas Oil, No. 1.....₱ ℔ 8
Turkey Oil, No. 1.....net " 22c
Washita Extra.....net " 30c
" No. 1.....net " 50c
" " 2.....net " 21c
Hindostan 8 inch.....₱ ℔ 4¼ @ 4¾c., net
Screws.
United States and others in Combination.....dis 60 %
Spoons.—
Plated.....dis 40 @ 40&5 %
Britannia, Boardmans (new list).....dis 50&10 %
" Parkers (old list).....dis 50 @ 50&10 %
German Silver.....dis 30&5 %
Lalance & Grosjean Iron.....dis 40 %
Springs.—Gray's Door.....dis 60&10 %
Torry's Door.....dis 60&10%
Stocks and Dies......dis 10&5 %
Stove Polish.—Gem.....₱ gross, $4 25 @ 4 50
Onyx.....$4 00 @ 4 25
Disco.....$5 75 @ 6 00
Try Squares.—Winterbottom.....dis 20 @ 20&10 %
Stanley Rule and Level Co.....dis 45&10 %
Willis Thrall No. 2.....dis 50&10 %
Disston's No. 2.....dis 40 %
Tacks, &c.—Half Weight Tacks.....dis 75 @ 75&10 %
Trunk, Clout and Finishing Nails.....net to 10 %
Traps.—Genuine Oneida—Newhouse list.....dis 30&25 %
Im. Oneida—Newhouse list (1st qual.).....dis 40 @ 40&5 %
Vises.—Solid Box, Trenton.....₱ ℔ 12½c
Wrenches.—Coes Genuine.....dis 45 @ 50 %
Coes Pattern Wrought Bar.....dis 50&10 %
" Malleable Bar.....dis 70&10 %
Girard Wrenches, Coe's Pattern.....dis 50&10 %
" Agricultural Wrench.....$3 00 $5 00 net
Wrought Bar, Coe's Pattern.....dis 70 @ 70&10 %
Tafts Pattern (Wrought Bar).....dis 70 @ 70&10 %
Philadelphia Tool Co.'s Pat. Duplex.....dis 25 %
" " Improved Baxter.....dis 25 %
Wire.—
No. 0 to 18.....dis 52½ @ 55 %
No. 19 to 26.....dis 57½ @ 60 %
No. 27 to 36.....dis 60 @ 62½ %
Coppered 0 to 18.....dis 47½ @ 50 %
Tinned Broom Wire.....dis 45 %
Galvanized Wire No. 1 to 13.....dis 25 %

BUFFALO.

Reported by Messrs. Sidney Shepard & Co.
Oct. 13, 1876.

Augers—Snell Mfg. Co.....dis 25&10 %
Axes—Francis.....$ 1 00
Bits, Auger—Snell Mfg. Co.....dis 25&10 %
Phoenix.....dis 40 %
Bells, Cow—Yaw's Genuine.....dis 25 %
Braces—Bit, Spofford's Patent.....dis 50 %
Brads, Cut.....dis 50&10 %
Brass—Sheets.....19c net
Boards—Stove, Brooks' Pat.dis 35 % 4 mos.; 7 & 5 % 30 dys
Bolts—Stove.....dis 40 %
Brick—Bath (box of 2 doz) Best English.....$1 25
Can Openers—Sprague's.....dis 55&10 %
Cases—Parlor Coal Hod.....dis 15 %
Chisels—Firmer Socket.....dis 70 %
Framing Socket.....dis 70 %
Corner Socket Chisels.....dis 70 %
Slick's Carpenters'.....dis 70 %
Castings—Malleable.....₱ ℔ 9c
Cocks—Globe and Bibb.....dis 40 %
Cutters—Meat, "Hales".....40 %
Egg Beaters—"Dover".....per doz $4 00
Elbows—Corrugated.....dis 15 %
Adjustable.....dis 20 %
Columbus.....dis 25 %
Flies—Maltehoes Bros.....dis 50&10 %
Fluters—Geneva Hand.....₱ doz, $15 00
Freezers, Ice Cream—"Champion".....dis 30 %
Hammers—Henry W. Kip's.....dis 10&5 %
Hinges, Gate—Shepard's.....dis 40&5 %
Hinges—Window Blind—
Shepard's and Standard.....dis 60&10 %
Hogs, Coal—Plain, Black and Galvan'd...new list dis 15 %
Funnel, Black and Galvanized.....dis 15 %
Fancy and Helmet.....dis 15 %
Sad Irons.....3c
Kettles—Brass.....₱ ℔. 45c
Copper, "Hand Made".....38c.
Enameled.....dis 50 %
Knives, Drawing—Oval No. 1.....dis 70 %
Razor Blade.....dis 60&10 %
Lanterns, Tubular—with guard.....$11 50
Without guard.....$10 00 dis 15 %
Machines—Apple Paring.....7 50 ₱ doz
Machines—Boring, Snell's.....dis 20 %
Mills, Coffee—Box and Side, common.....dis 25 %
Box Union and Eagle.....dis 30 %
Cut Nails, "Harrisburg," 10d.....$4 00
Horse, Ausable.....No. 5 6 7 8 9 10
" " Pointed & Polished.....30 27 25 24 23 22c
" " 1000 lbs.....add 1c ₱ ℔
Paint—White Lead, U. S. Gov't.....dis 5 %
Pans—Dripping.....₱ ℔ 8½c
Frying.....₱ ℔ 9c
Rivets—Iron, Black and Tinned.....dis 55 @ 60 %
Screws—"American screw Co"—
Flat Head, Iron.....dis 52½ %
Flat Head, Brass.....dis 52½ %
Sieves—Wood, Hoop Iron.....$1 35
Tinned.....1 65
Sifters—Ash.....$9 00 @ $12 00
Skates and Straps—White's.....dis 30 %
Spoons, Iron Tinned.....dis 10 %
" by the case.....dis 20 %
S. S. & Co., Kitchen.....20&19 %
Plated Rogers' A No. 1.....dis 40 %
Britannia.....dis 55 %
G. S. Hall, Elton & Co.....dis 30 %
Scales—Buffalo Scale Works.....dis 30 %
Fairbanks.....dis 25 %
Stove Polish—Gem.....₱ gross, $4 50
" Dixon's.....6 00
Palace.....₱ gross, $3 50; bulk, per ₱ ℔. 9c
Squeezers—Lemon, Porcelain.....₱ doz., $3 40
Tacks—Half Weight Am. Iron.....dis 50&10 %
Tea Trays.....dis. 15 %
Thermometers—Tin Case.....dis 50, 10&10 %
Tools—Tinners'.....dis 10 %
Vises—Palace Coal.....dis 15 %
Parallel, Buffalo.....dis 30 %
Ware—French, Tinned and Iron.....dis 35&10 %
Stamped and Japanned.....dis 15 %
Cast Iron Hollow.....dis 45 %
Wire—Brass and Copper.....list net
Wire—Bessmeer Steel.....dis 15 %
Wringers—Novelty.....$12 00; lots of 2 doz., $10 00
Tin Plates.—Add for each X.....2 50
10x14, IC, Charcoal.....$8 25 | 14x20 I. C. terne.....$7 50
12x12, " " 8 25 | 20x28 C. " 16 00
12½x17, " " 7 75 | 20x28 X. " 22 00
14x20, " " 8 25 |
Pig Tin—Straits.....22c @ 23½c
Bar Tin.....23c
Solder—No. 1, Crook's.....15c
No. 1 Star.....13c
Sheet Zinc—
"Lasalle".....5 70 100 ℔ casks
$9 50 ₱ 100 lbs
Sheets.....$9 50
Babbit Metal.....₱ ℔ 12c
Iron Wire—Bright and Annealed.....dis 50 %
Coppered.....dis 45 %
Tinned.....dis 30 %
Tinned Broom, { Nos. 20 21 22 } 20c 21c 21c .....dis 40 %
Copper—Sheathing 14 @ 18 oz.....₱ ℔ 31c
Planished.....₱ ℔ 37c @ 39c
Bottoms.....₱ ℔ 33c
Bolts.....₱ ℔ 32 @ 34c
Braziers' Sheets.....₱ ℔ 32 @ 34c
Sheet Iron.—
14 Common.....$3 50
24 Common.....3 70
26 Common.....3 90
24 W. D. Wood & Co., Smooth Finish.....4 75
Planished.....A. B.
14c 16c
Gen. Russia, No. 1 stained.....12½c
" " clean.....13½c
Galvanized.....dis 33⅓ %

DETROIT.

(Reported by Messrs. Jewett & Root.)
Sept. 25, 1876.

Tin Plate Best Grades.
IC, 10x14, 12x12, 14x20.....$8 25
IX, 10x14, 12x12, 14x20.....10 75
IXX, 14x20.....13 25
IXXX, 14x20.....15 75
IXXXX, 14x20.....18 25
DC, 12½x17.....7 75
DX, 12½x17.....10 25
DXX, 12½x17.....12 75
DXXX, 12½x17.....15 25
DXXXX, 12½x17.....17 75
IC, Terne, 14x20.....7 85
IX, " 14x20.....10 35
IC, " 20x28.....16 20
IX, " 20x28.....21 20
Pig Tin—Straits.
Large Pigs.....22c
Small Pigs.....22½c
Bar Tin.....23c
Solder—Pure Refined.
No. 1.....14c
No. 2.....12c
Copper
Sheathing, 14, 16 and 18 oz.....31c
Planished, 14x48.....36c
" Boiler Sizes.....39c
Bottoms.....33c
Sheet Iron.
No. 18, Am. Common.....$3 50
No. 24, Am. Common.....3 70
No. 26, Am. Common.....3 90
No. 27, Am. Common.....4 10
No. 21, W. D. Wood & Co., Smooth.....4 70
Russia Genuine Perfect.....14c
A B
Planished Russia.....14c 15c

PITTSBURGH.

The following are the Card rates, f. o. b. in Pittsburgh of Lewis, Oliver & Phillips, H. B. Newhall, 11 Warren St. New York, Agent.

Merchant Bar Iron.....2 2-10c rates net
Flat Rail (3¼x¾), penched and coun'sunk..3½c ₱ ℔ net
Iron Wedges.....3½c ₱ ℔ net
Norway Nail Rods.....7½c ₱ ℔ net
Iron Crow Bars (in ordering please state whether "Wedge" or "Pinch" point).....4 c ₱ ℔ net
Beetle Rings.....5½c ₱ ℔ net
Fence Pickets—
⅝ rod, bent to shape, 25c ₱ ft. of fence, less 15 % off net
Discount off Standard List.
Carriage and Tire Bolts, 75&5 % off net.
Stove Bolts.....40 % off net
Elevator Bolts.....30 % off net
Machine and Square Head Bolts.....60 % off net
Coach and Lag Screws.....60 % off net
Bolt Ends.....60 % off net
Pat. Hot Pressed Sq. and Hex. Nuts.....75c ₱ ℔ off net
Washers, all made from new band iron.....3½c ₱ ℔ off net
Nuts and Washers in 25 lb. boxes, ¼c ₱ ℔ ex. Nuts and Washers in lots less than one keg each size, ½c ₱ ℔ ex.
Kegs and Weigers ₱ 5 lb. Boxes, 1c. ₱ ℔ ex. net prices.
Standard Cast Iron Plows.....4½c. ₱ ℔ net
Iron Harrow Teeth, in lots of 1 ton or more, packed in 200 lb. boxes, 1 in. diam. 2½c ₱ ℔ net; ⅞, ¾ in. diam. 2¾c ₱ ℔ net; ⅝ in. diam. 3c ₱ ℔ net.
Pat. Headed Harrow Teeth, packed in boxes ½c ₱ ℔ ex.
Skein Bolts, in bulk, in lots of 1 keg or more, ¾ in. diam. 4½c ₱ ℔ net; 9-16 in. diam. 5½c ₱ ℔ net; ½ in. diam. 6½c ₱ ℔ net. 1c ₱ ℔ extra when less than 1 keg of each size is ordered.
Screw Hook and Eye Hinges, with Pat. Hooks, ¾ to 1 in. diam., 7½c ₱ ℔ net; ⅝ in. diam., 8½c ₱ ℔ net; ½ in. diam., 10c ₱ ℔ net.
Screw and Strap Hinges—all sizes under 28 in. long have Pat. Hooks; 14 to 36 in. long, 11c ₱ ℔ net; 6, 8, 10 and 12 in. long, 9½c ₱ ℔ net.
Strap & T Hinges.....60, 10&5 % off net
Hereafter we will not make any allowance for freight on Strap and T Hinges, our price on them is F. O. B. in Pittsburgh.
Coil Chain: ¾, 5½c; 9-16, 5¾c; ½, 6c; 7-16, 6½c; ⅜, 6¾c 5-16, 7½c; ¼, 9c ₱ ℔ net.
Screw Hitching Rings, light, with ½ ring, No. 1, $4 00 ₱ 100 net; heavy, with 5-16 ring, No. 2, $4 50 ₱ 100 net.
Bridge and Roof Bolts—
1 to 2 in. diam. over 3 ft. long.....₱ ℔ 3½c net
1 to 2 in. diam. from 4 to 8 ft. long.....3½c net
1 to 2 in. diam. from 1½ to 4 ft. long.....4 c net
⅞, ¾ and ⅝ in. diam. over 4 ft. long.....4½c net
⅞, ¾ and ⅝ in. diam. from 1½ to 4 ft. long.....4¾c net
Bridge bolts with upset ends.....¼c. ₱ ℔ extra
Wrought iron plates, punched.....1½c. ₱ ℔ net
Cast Iron Washers.....₱ ℔ 3½c net
Duck Nest Tuyere Irons.....$13 50 ₱ doz net
Wrought Iron Repair Links.....15½ % off net
" Rings.....50 % off net
" Lap Rings.....33½ % off net

WAGON HARDWARE.

Single Trees, Neck Yokes and Double Trees, made from best selected Hickory, and ironed complete, in the most approved patterns.
No. 1 Southern Plow Single Tree, Ironed complete, Irons all Wrought.....each, 35c net
No. 2 Western Plow Single Tree, Ironed complete, Irons all Wrought.....each, 60c net
No. 3 Wagon Single Tree, Ironed complete, Irons all Wrought, except Malleable Ferrule.....each, 60c net
No. 4 Wagon Single Tree, Ironed complete, Irons all Wrought; Improved End Pieces riveted on; one side acts as a wear iron for wheel to rub against.....each, 60c net
Neck Yoke, Ironed Complete, Irons all Wt., except End Ferrules, with Wt. Iron Rings.each, 70c net
Southern Plow Double Tree.....each, 60c net
Wagon Box Strap Bolts—For Orders of 50 Set, 45 % dis.

10 in. long by 7-16 at Screw End, ₱ set of 8 bolts							45c
12	"	½	"	8	"	"	50c
10	"	9-16	"	8	"	"	65c
12	"	9-16	"	8	"	"	70c
14	"	9-16	"	8	"	"	80c
10	"	⅝	"	8	"	"	80c
12	"	⅝	"	8	"	"	80c
14	"	⅝	"	8	"	"	90c
16	"	⅝	"	8	"	"	1 00
18	"	⅝	"	8	"	"	1 10
20	"	⅝	"	8	"	"	1 20

5c ₱ set for each additional inch over 14 in. All lengths made.
In ordering Box Strap Bolts please give diameter at Screw End.
Wrought Iron Bolster Plates, 2¾ in. wide, ₱ set.....45c
" " " 3 " " " 50c
" " " 3¼ " " " 55c
" " " 3½ " " " 60c
Wrought Hammer Straps, heavy pattern, each.....13 c
" " " light " each.....11 c
" Rub Irons, each.....9 c
Double and Single Tree Clips, figure 1, each.....8 c
" " " " 2, each.....9 c
" " " " 3, each.....11 c
Pole Caps, each.....2½c
Strap Bolts, Bolster Plates, Hammer Straps, Rub Irons, Clips and Pole Caps, in lots of 50 sets.....dis 45 %
For each order amounting to $2 00 net, or over, for the following goods: Wagon Hardware, Carriage and Tire Bolts, Rivets, Skein Bolts, Nuts, Washers, Chains, Bevel Box and Tongue Cap Iron, we will allow an extra discount of 10 per cent off all Wagon Hardware, subject to discount, comprised in the order. Jobbers who do not deal in iron, we allow to substitute Strap and T Hinges in lieu of Bevel Box and Tongue Cap Iron to make order up to $2 00 worth and secure the extra discount of 10 per cent.
Single Tree Hooks, Nos. 1 and 2.....each, 3½c net
Single Tree Irons, New Pattern.....each, 4½c net
Stay Chain Hooks.....each, 3½c net
Wagon Box Rods, narrow track, with Pat. Collar.....each, 7½c net
Wagon Box Rods, wide track, with Patent Collar.....each, 8½c net
Wagon Brake Ratchets.....each, 7 c net
" " finished with guard..each, 20c net
Single Tree Iron, Wt. Hook, Malleable Ferrule.....each, 7½ net
Single Tree Iron, Wt. ¾ Hook and 7-16 Clip, each, 7c net
Single and Double Tree Iron, Wrought Center Clip, ¾ in. Welded, with ½ in. ring.....each 10c net
Southern Plow Center Clip, ½ in. Welded, and 7-16 End Clip with 5-16 in. Hook—per set of 3 pieces.20c net
Neck Yoke End Ferrule, Malleable, with Wt. Iron Ring.....each, 6½c net
Neck Yoke Attachment, with plates complete.....each, 23c net
Axle Tree Clips, No. 1.....each 2 ¼c net
" No. 2.....each 3¼c net
" For Farm and Lumber Wagons, Shank, 9-16 in., flat part 1¼ in.....each, 6¾c net
Plow and Wagon Clevises.....₱ ℔ 7c net
California Tire Rivets and Burrs, 5-16.....10c net
" " " ⅜ " 11c net
Wagon Box Staples, 1¼ to 2¼ in. to clinch. ₱ 1000 $10 75 net
" Bevel Box Iron, to rivet on. ₱ 1000 7 25 net
Neck Yoke Eyes, each.....4½c net
" " with ¾ rings, each.....7c net
King Bolts, ¾, 1, 1¼, and 1½ in. diam.....₱ ℔ 3½c net
Wagon Rivets, ex. large flat, oval and steeple head, ¼ in. diam., 1 in. and longer.....7 c net
Wagon Rivets, 3-16 in. diam., 1 in. and longer.....8 c net
" ¾ to 1 inch long.....₱ ℔ 1c extra
" & Nails, in 5 ℔ paper boxes.....1c extra
" in 25 ℔ wood " .....½c extra
Wagon and Hinge Nails, pointed by hand—

¼x3 and longer.	2¼ & 2½	2 & 2¼	1¾ and shorter.
	11c ₱ ℔.	12c ₱ ℔.	13c ₱ ℔ net
3-16x3 and longer.	2½ & 2¾	2 & 2½	1¾ and shorter.
	12c ₱ ℔.	13c ₱ ℔.	14c ₱ ℔ net

Wagon Rivets and Nails, in less lots than one keg each size.....₱ ℔ ½c extra
Double Tree Plates.....7½c net
Coupling " .....4½c net
Tongue " .....7½c net
Neck Yoke Plates.....8½c net
Tongue Cap Iron, 1¾, 2 & 2¼ in. wide, same price ₱ ℔ as No. 12 Band Iron.
Wagon Chains, Stay, Lock and Tongue, 5-16 in. ₱ ℔ 7c net; ¼ in., 8c net.
Our prices are all subject to change of market, without notice.

CINCINNATI.

Reported by Sellew & Co., Importers and Jobbers in Metals, No. 214, 216 and 218 Main street. Oct. 10, 1876.

Tin Plate.—I. C. 10x14 Charcoal @ $8·50
I. X. 10x14 Charcoal @ 10·50
I. C. 14x20 Charcoal @ 9·00
I. X. 14x20 Charcoal @ 11·00
I. C. 12x12 Charcoal @ 9·00
D. C. 12½x17 Charcoal @ 9·25
D. X. 12½x17 Charcoal @ 11·50
I. C. 14x20 Charcoal Roofing @ 7·75
I. C. 20x28 Charcoal Roofing @ 16·50
I. C. 10x14 Coke @ 7·50
I. C. 14x20 Coke @ 8·50
I. C. 10x20 Coke @ 13·00
Sheet Zinc.—Cask @ 9½c
Sheet @ 10 c
Copper.—Braziers @ 32 c
Planished @ 39 c
Sheathing @ 32 c
Bottoms @ 33 c
Bar @ 22 c
Block Tin.—Pig @ 23 c
Bars @ 25 c
Lead.—Pig @ 7¼c
Bar @ 8½c
Solder.—S. & Co @ 18 c
A 1 @ 15 c
Market Wire.—Bundles dis 40 %
Less dis 35 %
Sheet Iron.—"B," No. 27 4·10c
Smooth, "S L U," No. 27 5·10c
Smooth D Refined, No. 27 6·75c
Planished "A." 12c
Planished "B" 10c
Imitation A 9c
Imitation B 8 c
Galvanized dis 33⅓ %
Russia 13½c
Brass.—Soft 30c
Hoop 35c
Platers' 30c
Tube 50c
Antimony 19c
Babitt Metal—No. 1 45c; 2 25c; 3 20c; 4 10c
Bismuth $3 50
Nickel 3 20
Steel Cast 14c
Elbows dis 15 %
Sad Irons 3 c
Enameled Ware discount from new list 50 %
Bread Pans ₽ ℔ 8c

BOSTON.

Reported by Macomber, Bigelow & Dowse, 156 to 164 Oliver St.

Anvils.—"Eagle American" per lb. 9c; dis 20 %
Augers.—Watrous Ship dis 10 %
L'Hommedieu Ship dis 20 %
Axes.—Blue Jacket 9 00
Racer 8 00
Red Cross, Handled 10 50
" " Boy's 9 00
Blue Jacket " 10 00
Axe Handles.—Wadleigh's Oak—
A (Extra) $2·50. B (No. 1) $2·00. C (No. 2) $1·50 ₽ doz
Blind Hinges.—
Orr or Washburn's per hundred sets $8 00
Blind Fasts.—
Orr or Washburn's per hundred set $6 00
Bolts.—Carriage, Phila dis 60&10 %
Carriage, Common dis 75&10 %
Borax.—Best Refined ₽ ℔ 11c
Borers.—Angle, Backus' dis 30 %
Boring Machines.—Angle each $4 50
Common. Snell's quality each 3 50
Braces.—Barber's dis 40&5 %
Backus' dis 50 %
Spofford's dis 50 %
Bracket
Saw Frames, with patterns complete ₽ doz $6 00
Saws " 88
Saw Frames, Centennial " 3 50
Star Bronzed new list net
Star Japanned new list net
Store Shelf new list net
Brass Faucets.—L. F. & C. dis 40 %
Brushes—Horse, Patent Metallic per doz. $4·50
Butts.—Union Drilled Loose Joint dis 45, 12½&10 %
" " Wire Fast Joint. dis 25, 12½&10%
" " Acorn Loose J't. dis 45, 12½&10 %
Brass Butts dis 30 %
Wrought Table Butts and Back Flaps revised list, dis 30 %
Wrought Narrow Butts reduced, dis 30 %
Cards.—
Curry Cards, No. X, per doz., $0·75 dis 30 %
Horse " No. X, " 0·80 dis 30 %
Wool " No. 8X, " 2·50 dis 15 %
Cotton " No. 10, " 3·50 dis 10 %
Cartridges.—U. S. Cartridge Co. dis 60 %
Chisels.—"Buck Bros." Shank Goods and 30 %
Socket and 25 %
Compasses and Dividers.—Bemis' dis 40 %
P. S. & W. dis 30 %
Cordage.—Manila (usual trade dis.) ₽ ℔ 12c
American Tarred Hemp Lath Yarn ₽ ℔. 10c
Corn Hooks per doz $2·75
Crow Bars.—Solid Steel ₽ ℔. 9c
Cow Ties dis 30 %
Dividers.—Cook's Nickel Plated dis 15 %
Door Springs.—Moseley—

Per doz	$9·00	12·00	15·00	18·00	24·00
No.	0	1	2	3	4

Torrey's $2·50
Gem dis 10 %
Drills.—Whitney's with Chucks $12·50
Emery.—Alden ₽ ℔ 7c
Wellington Mills ₽ ℔ 10c
Files.—
American dis 30 %
Nicholson, new list dis 30 %
Wheeler, Madden & Clemson $5 to £; 10 %
Stubb's Tapers, genuine, 3 in., $1·30; 3½, $1·60, $1·88; 4½, $2 13; 5, $2·50
Funnel Irons dis. 10 %

$2·50	2·50	2·50	3·25 per doz
5,	5½,	6,	7 inch.

Deep Flange.—$3·50, 3·75, 4·00 — 5, 5½, 6 inch.
Hammers.—Maydole—new reduced list dis 15 %
M., B, & D., solid cast steel, adze eye, No. 1, $10; 1½, $9·75; " " " " bell face, No 1, $11; 1½, $9·75.
Hammond—new reduced list dis 15 %
Hangers & Rollers.—Anti-Friction dis 40 %
Climax dis 40 %
Acme Rollers dis 40 %
Hatchets.—Underhill Edge Tool Co. dis 25 %
C. F. Dowse, warranted Cast Steel—
Shingling 0, $4·75; 1, $5·25; 2, $5·75
Claw 1, 5·75; 2, 6·25
Lathing 1, $5·50
Axe Pattern 1, $7·00; 2, 7·50
Broad 0, $5·75; 1, $6·50; 2, $7·50; 3, $9·25; 4, $10·75; 5, $12·75; 6, $14·75
Hinges.—Strap and T Stanley Works unsettled
Plate, Loose and Fast Joint ₽ ℔ 5c
Wrought Screw Hook ₽ ℔ 5c
Knobs.—Imp. Extension Silvered Glass ₽ doz $8·00
Lanterns.—Tubular No. 0 $ 9·50
Guarded, No. 7½, (with kerosene oil and candle burners) 5·50
Lead.—Sheet, 9½c.; Pipe, 9c dis 10 %
Locks.—Norwalk Lock Co. dis 35 %
Mattocks.—
K. P. & Co., axe finish, long cutter $11 50—net
Short cutter 11 00—net
Meat Cutters.—"Miles's" Challenge dis 30 %
No. 1, $22·00; 2, $30·00; 3, $40·00.
Metal.—Babbitt No. 1, 35c; 3, 25c; 5, 15c ₽ ℔
Nails.—10d and larger, 25c. dis in lot. of 100 kegs. $3 15
Nail Pullers.—Little Giant—Small per doz., $22·00
Little Giant—Large " 30·00
Padlocks.—Wilcox dis 33⅓&5 %
Picks.—K. P. & Co., Solid Eyes 5 to 6 $9 00; 6 to 7 $9 50
Pins.—Universal Hat and Coat all wood—
2 in. ₽ gross $2·50; 3 in., 3 50; 4 in., 4 50—dis 15 %
Planes.—Auburn Tool Co. dis 40 %
N. Y. Tool Co dis 40 %
Plated Ware.—Rogers bros dis 40 %
Pocket Knives.—Conn. Cutlery Co new net list
American Shear Co new net list
Plumb & Levels.—Stanley dis 60&10 %
Potato Diggers.
Wilmington, Cooley & Co dis 35 %
Pulleys.—Axle.
Frame Pol. Wheel No. 15, 1½ in., 25c.; 16, 2 in., 30c.
Common Axle No. 18, 1½ in., 34c.; 26, 2 in., 40c.
Milled Axle No. 2, 1½ in., 42c.; 2, 2 in., 50c.
Nashua Pat. Axle Bronzed Face 1½ in., 80c; 2 in., 90c
Cast Steel Axle 2 in., $1·00
Pulley Blocks.—"Best Boston Make" net
Rail Barn Door.—For Novelty and Anti-Friction Hangers per foot 7c., dis 40 %
Refrigerators—Heinz Patent dis 20 %
Rivets.—Black dis 50 %
Carriage, oval head, Nos. 3, 4, 5, 6, 7, 8, 13 13 14 14 15 16c ₽ ℔ dis 35 %
Sad Irons.—Bless & Drake ₽ ℔ 3½c
Sand Paper dis 15 & 5 %
M. B. & D. 0 to 2, $4·25; 2 to 3, $4·75
Saws.—*Hand and Panel*—
X Cut, Wheeler, Madden & Clemson per ft., 35c
" Champion " 45c
" Lightning " 45c
" Great American " 30c
Wood Saws, Welsh & Griffith ₽ doz $12·00
Wheeler, Madden & Clemson's, same list as "Disston's" dis. 30 %
Disston's dis. 30 %
Saw Horses.—Extra ₽ doz $2 25
Folding " 3 50
Screws.—Am. Screw Co., new list Sept. 1st dis 60 %
Aiken's dis 60 %
Scythe Stones.—
"Willoughby Lake," first quality ₽ gross $6·50
" " second quality " 3·00
Shovels.—O. Ames dis 30 %
M. B. & D. dis 30 %
Sifters.—Coal, Rice, &c. $12 00
Spading Forks.—W. C. & Co dis 35 %
Sleds.—Miller's dis 33⅓ %
Tools.—Aiken's Pattern ₽ doz $8·00
Aiken's Genuine, $12 dis 40 %
" Saw Sets, $13 dis 40 %
Traps.—Oneida dis 25 %
Blake's dis 40 %
Vises.—K. P. & Co.'s Solid Box Blacksmith ₽ ℔ 13c
Parker's Parallel dis 10 %
Backus dis 25 %
"Howards," Parallel dis 25 %
Wardrobe Hooks.—Wire to drive ₽ gross $1 00
Weather Strips.—"Harmon's" per doz $5. dis 10 %
Weights.—Window Weights ₽ ℔ 1½
Wedges—Axe ₽ doz $4
Wire.—
Eureka, in spools, No. 28 to 40 assorted ₽ gross $3 50
Wire Netting.—Clinton Wire Cloth Co., Green, Drab or Black ₽ ft 5c
Wrenches.—Genuine Wrenches, G. A. Coes, dis 40 & 10 %
Wringers.—Novelty and Universal ₽ doz $66 00
Welcome " 60 00
Eureka " 57 00
Domestic, Purchase Gear " 51 00
Universal, " " 71 00
Withington, Cooley & Co.—Hoes, Rakes, Forks &c. dis 35 %. Special rate for Export.

ST. LOUIS.

Corrected weekly by Semple & Birge Mfg. Co.

Apple Parers.—Conqueror ₽ doz $7 75
Hudson's Rotary " 7 75
Axes.—Wm. Mann's, Red Warrior ₽ doz 9 75
" "C. Marshall" " 9 25
" Handled " 5 extra
" Double Bitted " 19 00
H. L. B. & Co.'s, L. & Co " 9 75
" Pioneer " 1 25
" James & Co " 9 50
Hunt's " 2 10
Axles.—"Jones, Henry & Co.'s" Patent Lubricating, Half Patent, Swelled Taper, Plain Taper and Concord Axles dis 25 &
Common Axles (Pat. Lubricating), 1½ inch and upward ₽ ℔
do. less than 1½ inch " 7 ½c.
Bellows.—Best St. Louis make 50c ₽ in. new
Bells.—Troy, Church, School and Farm Bells ₽ ℔ 30c
"Improved Amalgam Bronzed." 15 in., $2·00; 17 in., $2·50; 19 in., $4; 21 in., $5; 24 in., $14; 27 in. $18·50
Belting.—"Boston Belting Co.'s" Rubber. dis 50&10 %
Bradford & Sharp's" Oak-Tanned Leather dis 55 %
Boats—Metallic, Sectional, Bond's Pat new list net
Bolts.—Arms, Bell & Co.'s Carriage & Tire dis 70 & 10 %
Arms, Bell & Co.'s Machine dis 70 %
Butts.—Western Butt Co.'s new list—
Narrow Fast Joint dis 25&10 %
Broad Fast Joint dis 3 &10 %
" Loose " dis 45&10 %
Reversible dis 40&10 %
" Japanned and Silver Tipped dis 45&10 %
Loose Joint "Acorn" " dis 45&10 %
Churns.—Julian, No. 2, $7·00; No. 3, $7 50; No. 4, $8·50 dis 25 %
Cider Mills.
American Senior, $22·00; Am Junior, $18·00 net
Corn Drill.—Campbell's Patent, $19·00 net
Corn Knives.—Dunn Edge Tool Co.'s Clip ₽ doz 4 50
Seymour Mfg. Co.'s Solid Steel Back " 50
Corn Shellers.—Sandwich Mfg. Co.'s—
Power Shellers dis 10 %
Hand Shellers Special rates
Cotton Gins.—
Carver, with 10 in. Saws, $3·15 a Saw net
12 in. Saws, $4·00 a Saw net
Crow Bars.—Steel Pointed ₽ ℔ 6c
Drag Saw Machines.—
Culver's Iron Drag Saw dis 15 %
Robinson's Patent Sweepstakes Drag Saw dis 12½ %
Fanning Mills.—Nash & Cutt's dis 25 %
Feed Cutters.—Improved Burdick National dis 20 %
Sanford No. 1, $10 00; No. 2, $8 00 net
Bowman's Lever Cutter, $6·50 net
Files.—Black Diamond, Mill $5·00 £ currency.
" Bastard 5·00 £ currency.
" Taper 5·00 £ currency.
Forges.—Keystone Portable Forge Co.'s dis 12½ %
Forks and Hoes.—
Auburn Mfg. Co.'s Hay and Manure Forks dis 15 %
" " Handled Hoes dis 15 %
Garden Seed Drills and Wheel Hoes.
Allen's Double Wheel Hoe dis 15 %
" Planet Drill, Nos. 2 and 3 dis 15 %
" Combined Drill and Wheel Hoe dis 15 %
Grinding Mills.—Challenge Feed Mills dis 15 %
Sedgebeer's Nonpareil Mills dis 15 %
Bradford's French Burr Mills net list
Hammers.—Masons' Hammers ₽ ℔ 19c
Smiths' Hand " 15c
Handles.—No. 1 Fork, Hoe and Rake dis 25 %
No. 2 Fork, Hoe and Rake dis 35 %
Harrow Teeth.—1 inch iron ₽ ℔ 4½c
⅞ and ¾ inch iron 4½c
Barbed or Headed ½c extra
Hay and Cotton Presses.—
Dederick's Railroad net list
" Perpetual net list
Hay Knives.—
Dunn Edge Tool Co.'s ₽ doz $12 00 net
Lightning (Weymouth's Patent) ₽ doz $10 50
Horse Hay Fork.—Nellis' Harpoon $8·50 each net
Horse Nails.—National Patent Pointed 20c rate
National Patent Pointed, extra finished 22c "
Horse Powers.—Pitts or Carey's Patent dis 10 %
Wheeler's Railway dis 10 %
Sandwich Lever dis 10 %
Horse Shoes.—
Rhode Island (Perkin's Pattern) ₽ keg, $5·6 %
" Mule " 6·62½
" Trotting Shoes " 6 75
Tredegar Horse " 4 75
" Mule " 5·75
Hose.—
Boston Belting Co.'s Rubber Medium Sizes, dis 30&10 %
" " " Small Sizes, Hydrant dis 40 %
Mattocks and Grub Hoes.—
Klem, Logan & Co.'s Mattocks ₽ doz $11 75 @ 13 50
" " Grub Hoes, oval eye " 8 25 @ 9
Money Drawers.—
Pierpont & Co.'s Excelsior per doz $33 00 net
Nails.—Wheeling Riverside Brand $3·00 rate
Packing.—Boston Belting Co.'s Rubber, Plain dis 30 %
Boston Belting Co.'s Rubber, Pure dis 25&5 %
" " No. 1 Plain dis 40 %
" " Round and Square dis 10&10 %
Picks.—
Railroad and Clay ₽ doz $8 50 @ 10 00
Coal " 7 45 @ 8 00
Poll " 11 00 @ 13 85
Stone " 14 00 @ 14 90
Tamping " 14 75 @ 15 ..
Miners Drilling " 15 ..
Plows.—Avery's Cast and Steel dis 20 %
Collins Cast Cast Steel new list net
Pekin Steel dis 25 %
Plow Sulky.—Buckeye $29 25 net
Post Hole Augers.—Clark's Patent—
No. 1, ₽ doz. $27; No. 2, $30; No. 3, $32. dis 20 %
Pulleys.—5 inch per doz $3·70 net
4 inch per doz 2·50 net
Nellis' Patent dis 20 %
Pumps.
St. Louis, Farm, Patent Metal Lined new list dis 20 %
Rakes.—Paddock's Premium Sulky each $25 50 net
St. Louis Revolving 14 tooth 4 75 net
" " 16 " 5 00 net
Hand Hay Rake per doz $2·50
Reaper Knives and Sections.—
Geo. Barnes & Co.'s Knives dis 40 %
" " Sections dis 40 %
Road Scrapers.—Steel each $5·50 net
Cast Iron dis 10&5 %
Saws.—Curtis & Co dis 15 %
Scythes.—Dunn Edge Tool Co.'s dis 30 %
Scythe Stones.—No. 1 Ind'n Pond ₽ gr's, $7 00
Extra Indian Pond " 7 50
Premium " 10 50 } 11 25
Diamond Grit " 13 00
Shovels and Spades.—H. M. Myers & Co. dis 30
Grain Scoops—Patent Cor'd Straps H. M. M. & Co dis 20 %, and 75c per doz extra
do. M. Rowland & Co., dis 30 % and 75c " "
do. O. Ames & Son, dis 17½ % and 75c " "
Sledges.—Smith's Stone or Coal Sledges—
Steel Face Polished ₽ ℔ 75
Solid Cast Steel " 50
Snaths and Cradles.—Seymour Mfg. Co.'s dis 50 %
Sorghum Machinery.—Bell Cane Mills dis 25 %
Scantlin's Seamless Evaporators dis 15 %
Springs.—Cleveland Spring Co.'s—
Carriage and Express dis 12½ %
Blue Seat Springs dis 15 %
Thimble Skeins.—Whitewater's dis 40&10 %
Vises.—Solid Box ₽ ℔ 16
Wilson Mfg. Co.'s dis 15 %
Wheelbarrows.—Champion Iron Wheel ₽ doz $21·00
Champion Wood Wheel ₽ doz 29·00
" Garden ₽ doz. 38·00
Wrenches.—Coes' Genuine dis 55 %
Coes' Pattern dis 50 %
Wagons.—Whitewater Farm Wagons—
Thimble Skein 3 in. $74; 3¼ in. $78; 3½ in. $79
Iron Axle 1½ in. $75; 1⅝ in. $81; 1¾ in. $85

St. Louis Metal Market.

(Corrected Weekly by Messrs. R. Sellew & Co.)

Tin Plate.

IC, 10x14 Good Char.	$ 8·50	IX, 14x20, Best Roof.	$ 10·75
IC, 10x14, Best Char.	8·75	IC, 20x28, Good Roof.	16·50
IX, 10x14, "	11·25	IC, 20x28, Best Roof.	17·00
IC, 12x12, "	8·75	IX, 20x28, "	22·00
IX, 12x12, "	11·25	IC, 10x14, Good Coke.	7 50
IC, 14x20, "	8·75	IC, 10x14, Best Coke.	7·75
IX, 14x20, "	11·25	IC, 14x20, "	7·75
IC, 14x20, Good Roof.	8·00	IC, 10x20, "	12·75
IC, 14x20, Best Roof.	8·25		

Usual difference for odd sizes.

Block Tin.
Strait's, Large Pigs 24c | do. Small 25c
Eng. Ref'd, Large Pig 24c | Bar 26c

Sheet Zinc.
Casks ₽ ℔ 9½c | Sheet ₽ ℔ 9¾c

Solder.
Extra in Bars 16c
No. 1, in bars 15c
No. 2, " 14c
Roofing 13c

Sheet Copper.—
Braziers, 30x60, 14 to 100 lbs. Sheets 32c
" " 10 and 12 lbs., " 34c
" " 8 and 9 lbs. " 36c
" " 6 and 7 lbs. " 38c
Tinned, 14x48, 14 and 16 oz. 32c
Planished, 14x48, 14 and 16 oz. 38c
" Boiler Sizes, 14 and 16 oz. 41c
Copper Bottoms 31c

Sheet Iron.—	Com'n.	Sm'th.	Char'l.	Jun'ia.
No. 16 to 20	3 6c	4½c	6¼c	7·0c
No. 22 to 24	3·8c	4½c	6¼c	7·2c
No. 25 & 26	4 c	4¾c	6½c	8·1c
No. 27	4·2c	5 c	6¾c	8·3c

Galvanized Sheet Iron (Juniata) dis 32½
Iron Rivets (Papered) dis 25 %
Iron Wire dis 45 %
Copper Rivets and Burs dis 20
Genuine Russia Iron.
Perfect—No. 8, 10, 11, 12 per lb. 14c
Stained—No. 8, 10, 11, 12 per lb. 13c
Tare 22 lbs to Bdle. For less than Bdls. add 1c. ₽ ℔

THE JUDSON GOVERNOR.

It is a common method to advertise Governors *without cost,* unless satisfactory to the customer, and then charge *High Prices* for doing what any good Governor will do. Various Governors inferior to the "Judson" are sold in this way, operating well enough for three months, to insure collection of the pay, but becoming useless after a year's wear—their construction lacking durability. The Judson Governor is guaranteed to be not only the best Regulator of Steam Engines, but also the most durable Governor made. Parties in buying other Governors should stipulate that their durability be guaranteed, and should also take care that they do not, for much inferior Governors, pay higher prices than those shown in the accompanying list. We guarantee the Judson Governor will do all any other Governor can do, and in Accuracy and Durability—the main essentials—we guarantee it shall do more.

Reduced Price List,

FEBRUARY 1, 1877.

☞ For dimensions of Governor, see Illustrated Price List.

THE JUDSON PATENT

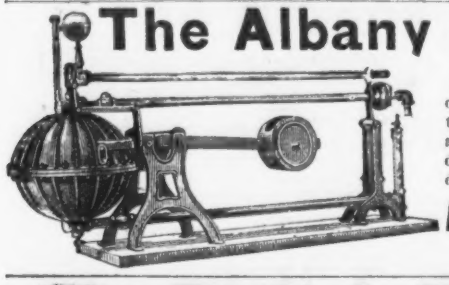
Improved Steam Governor.

Size, Inch.	Plain.	Bright Finished.	Extra for Spe'd'r	Stop Valve.
¼	$16 00	$18·00	$1·90	..
⅜	18 00	20·00	1·90	..
1	20·00	22·00	2·01	$5·00
1¼	23·00	26·00	2·25	6·00
1½	26·00	30·00	2·50	8·00
2	31·00	35·00	2·75	10·00
2¼	36·00	41·00	3·25	12·00
2½	40·00	45·00	3·50	14·00
2¾	45 00	51·00	3·75	16·00
3	50·00	57·00	4·25	19 00
3½	59·00	67·00	4·50	23·00
4	69·00	78·00	5·00	28·00
4½	80·00	90·00	5·50	34·00
5	90 00	101·00	6·00	40·00
5½	105·00	117·00	6·50	46·00
6	120·00	133·00	7·00	54·00
7	142·00	156·00	8·00	65·00
8	175·00	192·00	9·00	79·00
9	198·00	218·00	10·00	..
10	210 00	240·00	12·00	..

No Charge for Boxing & Cartage.

JUNIUS JUDSON & SON, Rochester, N. Y.

The Albany Steam Trap.



This Trap automatically drains the water of condensation from *Heating Coils,* and returns the same to the Boiler *whether* the Coils are *above or below* the water level in Boiler, thus doing away with pumps and other mechanical devices for such purposes. Apply to

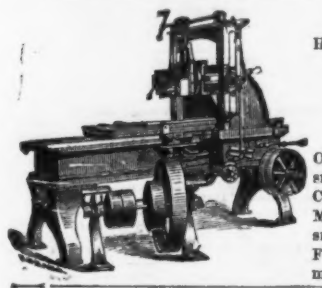
Albany Steam Trap Company,
Albany. N. Y.

The Pratt & Whitney Co.,

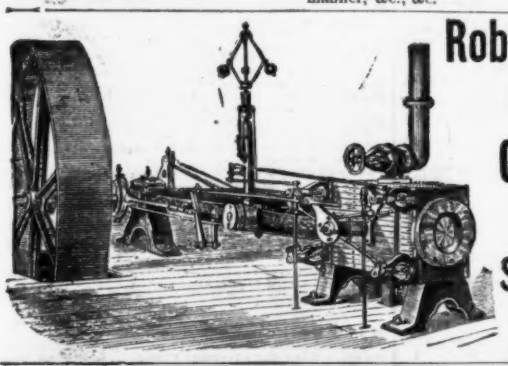
Hartford, Conn.,

Have constantly on hand and making

Drop Hammers



Of recently Improved Construction. Pony Trip Hammers, Blacksmiths' Sheaves, Broaching and Stamping Presses, Iron Shop Cranes, Machinists' Tools, Gun and Sewing Machine Machinery. Make to order Gray and Charcoal Iron Castings of all styles and sizes not exceeding 15 tons weight, (making patterns if desired). Furnish Clamp Pulleys of light patterns, cut gears in a superior manner, &c., &c.



Robt. Wetherill & Co

CHESTER, PA.

Corliss Engine BUILDERS.

Shafting & Gearing,

Boiler Makers.

THORNE, DeHAVEN & CO., Drilling Machines,

21st Street, above Market, Philadelphia.

PORTABLE DRILLS. Driven by power in any direction.
RADIAL DRILLS. Self-feed—Large Adjustable Box Table.
VERTICAL DRILLS. Self-feeding.
MULTIPLE DRILLS. 2 to 20 Spindles.
HORIZONTAL BORING AND DRILLING MACHINES.
HAND DRILLS. CAR BOX DRILLS.
SPECIAL DRILLS. For Special Work.

JOHN S. HUNTER, President. EDWARD J. MURPHY, Sec. & Treas.

The Hartford Foundry & Machine Co.,

Successors to the WOODRUFF & BEACH IRON WORKS,

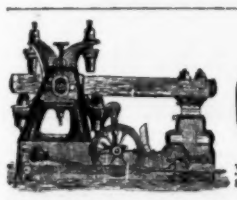
MANUFACTURERS OF

Marine & Stationary Engines, Mill Gearing Hoisting and Mining Machinery.

PUMPING ENGINES, for City and Town Supply a Specialty.

60 to 96 Commerce Street, HARTFORD, CONN.

☞ BRADLEY'S Cushioned Helve Hammer



Has Won Golden Opinions from the Mechanical World during the four years it has been before the public, and has reached a sale of 200 Hammers, all in successful operation, in this and foreign countries.

It Has More Good Points, Less Complication, More Adaptability, Larger Capacity, Does More and Better Work, Takes Less Power, Costs less for Repairs

than any Hammer in the World. GUARANTEED AS REPRESENTED, and "DON'T YOU FORGET IT."

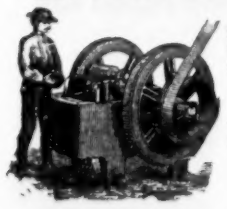
Established 1832

BRADLEY MFG. CO., Syracuse, N. Y.

Western Office, 22 S. Canal St., Chicago, Ill., A. B. BARNES, Manager.

BLAKE'S PATENT STONE & ORE BREAKER.

New Pattern with Important Improvements & Abundant Strength



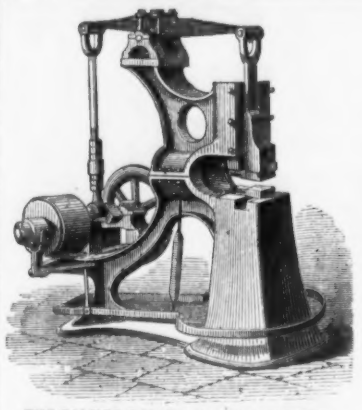
For reducing to fragments all kinds of hard and brittle substances, such as STONE for making the most perfect McADAM ROADS, and for making the best CONCRETE. It breaks stone at trifling cost for BALLASTING RAILROADS It is extensively in use in MINING operations, for crushing

IRON, COPPER, ZINC, SILVER, GOLD, and other ORES.

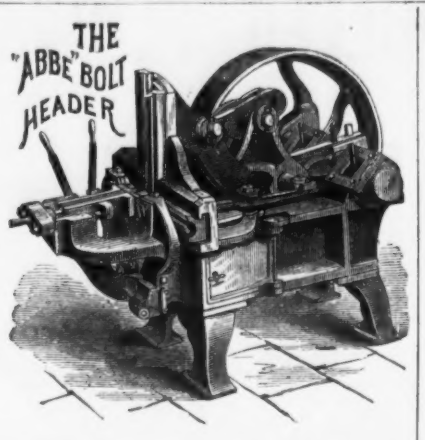
Also for crushing **Quartz, Flint, Emery, Corundum, Feldspar, Coal, Barytes, Manganese, Phosphate Rock, Plaster, Soapstone, &c.**

For Illustrated Circulars, and particulars, address,

BLAKE CRUSHER CO., New Haven, Conn.



THE PALMER POWER SPRING HAMMER.



Of these Machines we are building sizes to meet the requirements of all Manufacturers and Workers of Iron and Steel. In simplicity, durability, ease of operation, accuracy, and range of work, we guarantee them superior to any Machines of their kind produced in the world. For prices, references, and full descriptive circulars, address

S. C. FORSAITH & CO.,

Manchester, N. H

Knowles Patent Steam Pumps

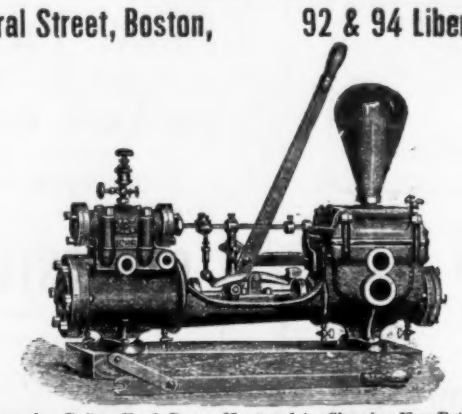
MANUFACTURED BY THE

KNOWLES STEAM PUMP WORKS,

WARREN, MASS.

WAREHOUSES:

14 & 16 Federal Street, Boston, 92 & 94 Liberty Street, N. Y.

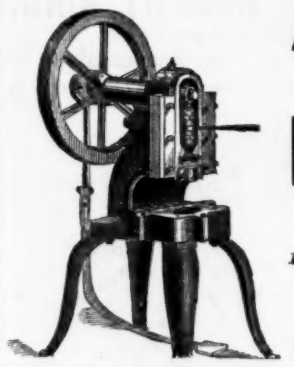


Cut above represents regular Boiler Feed Pump, No. 3 and 4. Showing New Patent Valve Motion, and Hand Power LEVER Attached and Detached.

FIRE PUMPS a specialty.

Mining Pumps (both Double Acting Plunger, and Piston Pattern,) which we guarantee to run absolutely noiseless on any lift from 100 to 600 ft., at a single lift, a specialty. Pumps for every possible duty. Prices as low as any, and our workmanship and material altogether the Best.

Every machine furnished under a complete guarantee.



A. H. MERRIMAN,

Patent Power

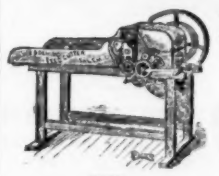
Punching Presses.

Patentee and Sole Manufacturer.

I warrant every part of this Machine to stand the shock of the wheel running at 125 revolutions.

West Meriden, Conn.

Machinery Hall, Philadelphia, Section B 4, Columns 28 and 29.



THE Silver & Deming FEED CUTTER

Received **Award and Special Report** from Judges at the *Centennial Exhibition.*

Barnard, Brown & Co

Agents for the Silver & Deming Feed Cutters for Mexico, Central and South America,

35 Broadway, New York City, U. S. A.

Silver & Deming Mfg. Co.

SALEM, OHIO, U. S. A.,

Manufacturers of

Improved Feed Cutters

HORSE POWERS,

Meat Choppers & Meat Stuffers,

HUB BOXING MACHINES,

Spoke Tenoning Machines,

Hollow Augers, Adjustable Clamps,

WATER TUYERE IRONS,

Blacksmith Drills, Saw Gummers, &c.

Liberal discounts to the trade. Send for price lists.

Improved Blacksmith Drill.

Celluloid Emery Wheel Co.,

Manufacturers of all kinds of

Celluloid Emery & Corundum Wheels

FOR DENTAL AND MANUFACTURING PURPOSES.

One of the Strongest, can be run with or without water, and will not glaze under any circumstance.

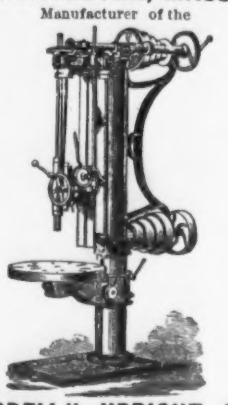
Office, 228 Market Street, NEWARK, N. J.

Send for Price List and Circular.

P. BLAISDELL & CO.,

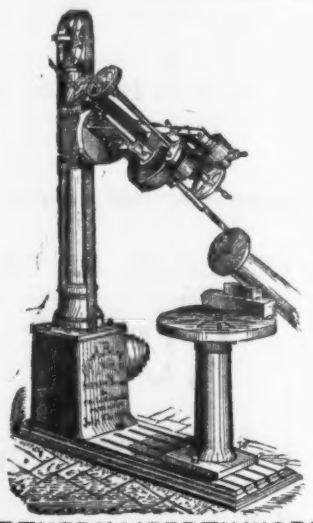
WORCESTER, MASS,

Manufacturer of the



"BLAISDELL" UPRIGHT DRILLS

And other First-Class Machinists' Tools.



NORTHERN LIBERTY WORKS,

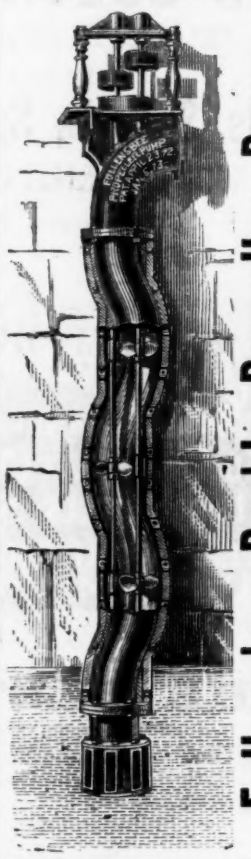
312 & 314 Greene St., Philadelphia, Pa.

ALFRED BOX & CO.,

Manufacturers of

Machinists' Tools, Pulleys, Shaftings and Hangers.

Patent Universal Radial Drills, Steam Hammers, Boiler Makers' Outfits.



Follansbee Double Propeller.

Medal and Diploma Awarded, Centennial Exposition, Philadelphia, 1876.

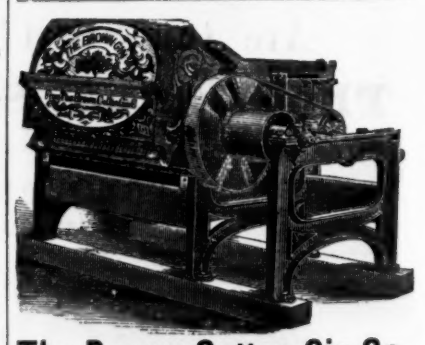
KILVERT & TAPPAN, General Agents,

Room 38, Simmons Building, Cor. Water and Congress Sts., Boston, Mass.

EUREKA SAFETY POWER!

Practically **impossible to explode.** Tested to 300 lbs pressure per square inch. Will slit 2 inch seasoned oak—grinds bushels Corn per hour. **Price $250.** Also, Stationary Engines and Boilers and **Spark Arresting Portable Engines** for plantation use. Send for our circular. Discount to the trade.

B. W. PAYNE & SONS,
Corning, N. Y.



The Brown Cotton Gin Co.

NEW LONDON, CONN.

Manufacturers of

COTTON GINS,

With or without

Self-Feeding Attachment & Condenser.

Cotton Gin Saws, Ribs and other Gin materials. Also **Albertson's Segment Screw Cotton,** and **Bale Press.** Send for Circular.

Machinery, &c.

THE

Shapley Engine

Patented Feb. 10, 1874.

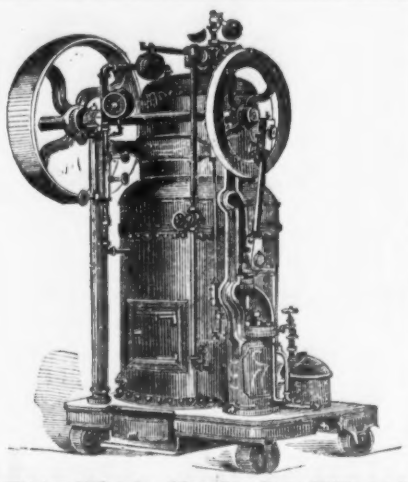
COMPACT,
PRACTICAL,
DURABLE,
ECONOMICAL.

$200·00.

Cheaper than any Engine offered of the same capacity.

MANUFACTURED BY

SHAPLEY & WELLS
Binghamton Iron Works,
Binghamton, N. Y.



Manufacturers of **Steam Engines, Boilers, Water Wheels, Circular Saw Mills and Mill Work generally.**

BUSH HILL IRON WORKS,

Corner 16th & Buttonwood Streets
PHILADELPHIA.

JAMES MOORE,

(Successor to MATTHEWS & MOORE,)

Engineer, Machinist, Founder and Boilermaker

CASTINGS of every description.

ROLLING MILL AND FURNACE EQUIPMENTS COMPLETE

Rolls Turned for Rails, Beams, Angles, and all shapes for Iron, Steel, or Composition Metals.

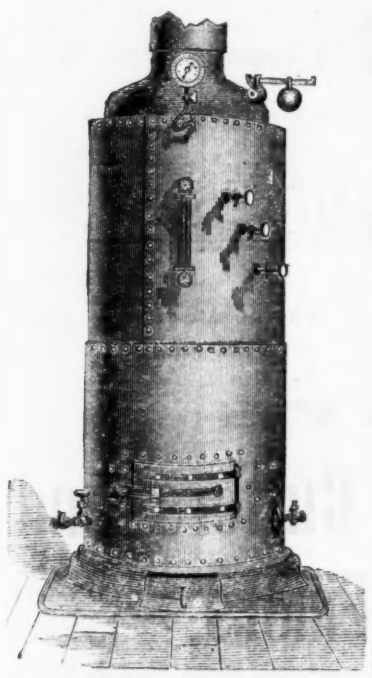
Sugar Mill, Saw Mill and Grist Mill Machinery,
AND MILLWRIGHTING IN GENERAL.

BOILERS—FLUE, TUBULAR AND CYLINDER, and all kinds of TANK AND PLATE IRON WORK.

CHAS. W. ERVIEN & CO.,

Ireland Street, Kensington, PHILADELPHIA.

Builders of STATIONARY & MARINE



Engines, Boilers

SHAFTING, GEARING,
AND
MILL WORK
GENERALLY.

Special Machinery
BUILT TO ORDER.

Vertical and Horizontal Engines, of New and Heavy Designs, from 2 to 100 H. P. on hand, or in process of erection.

CENTENNIAL SPACE:
Section B 9, Column 69, Machinery Hall.

Visitors invited to inspect our improved method of starting engines.

The 100 h. p. horizontal engine now in our space in Machinery Hall, and which took a premium, may be bought on specially advantageous terms if applied for immediately

---

Morse Twist Drill and Machine Co.,

NEW BEDFORD, MASS., Sole Manufacturers of

Morse Patent Straight-Lip Increase Twist Drill,

Beach's Patent Self-Centering Chuck, Solid and Shell Reamers.

BIT STOCK DRILLS,

Drills for Coes, Worcester, Hunter and other Hand Drill Presses. Beach's Patent Self-Centering Chucks, Center and Adjustable Drill Chucks, Solid and Shell Reamers. Drill Grinding Machines. Taper Reamers, Milling Cutters and Special tools to order.

All Tools exact to Whitworth Standard Gauges.

GEO. R. STETSON, Supt. EDWARD S. TABER, Treas.

RHODE ISLAND HORSE SHOE CO.,

OFFICE, 81 Canal Street, Providence, R. I. WORKS at Valley Falls, R. I.

Manufacturers of

PERKINS and RHODE ISLAND PATTERNS of

HORSE AND MULE SHOES.

Machinery, &c.

Established 1848.

WM. SELLERS & CO.,

600 Hamilton Street, PHILADELPHIA.,

Engineers, Iron Founders and Machinists.

RAILWAY SHOP EQUIPMENTS.

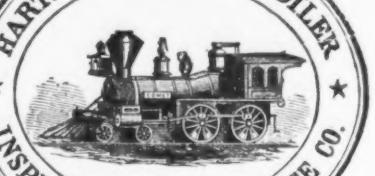
Our Steam Hammers, Lathes, Planers, Drills and Bolt Cutters
Are of Improved and Patented Construction.

Railway Turning and Transfer Tables,
SHAFTING & MILL GEARING, a specialty.

Pivot Bridges.

GIFFARD'S INJECTOR--IMPROVED, SELF-ADJUSTING.

HARTFORD STEAM BOILER INSPECTION AND INSURANCE CO.



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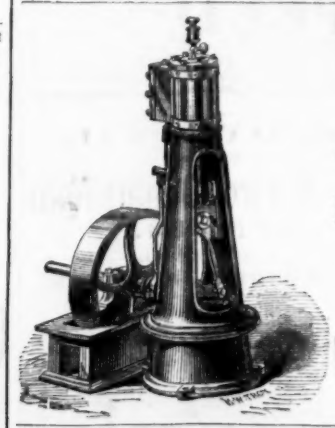

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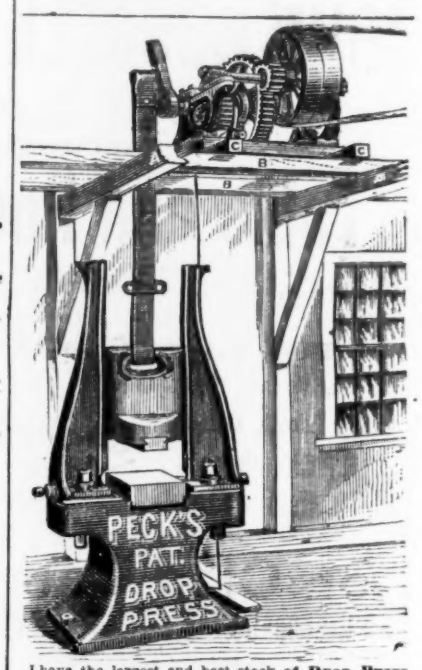

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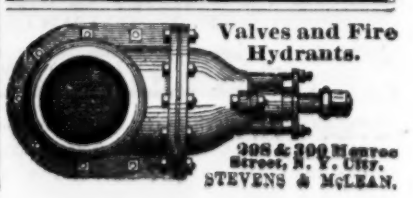

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X	30c	E	12c
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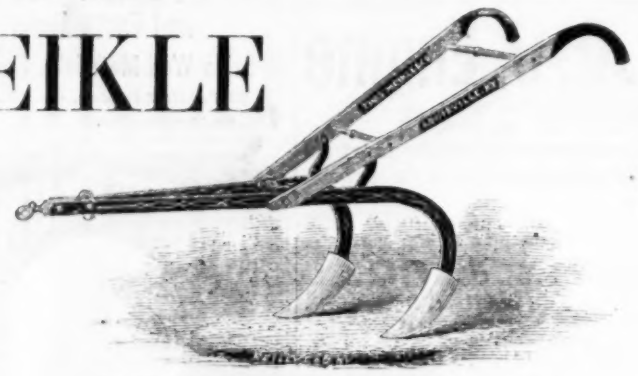

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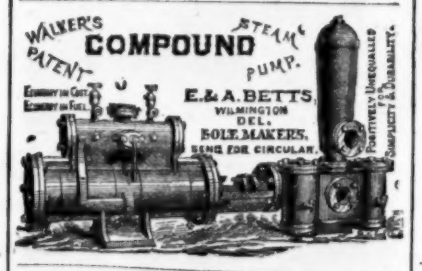

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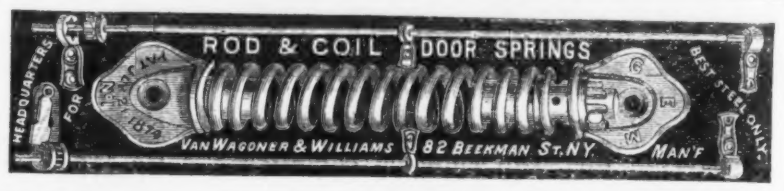

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FOR CLOSING DOORS,

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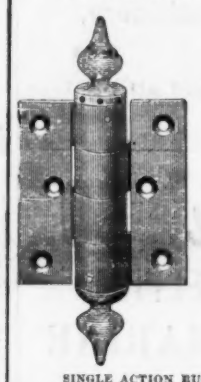
SWINGING THEM EITHER WAY.



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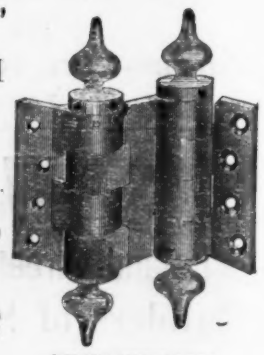

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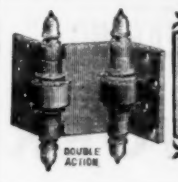

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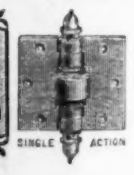

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